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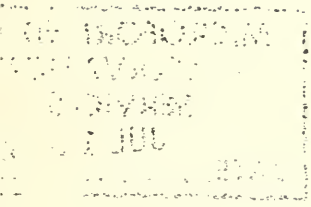

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MILITARY ITALY.

BY

CHARLES MARTEL.

Salus populi suprema lex.

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MILITARY ITALY.

CHAPTER I.

THE ITALY OF TO-DAY.

United Italy—Progress during the Past Decade—Arduous Task of Reconstruction—"The First Necessity for an Italian Monarchy"—Military Expenditure—Influence of the Army on Society—Opinion of Baron Haymerlé—National Aspirations—False Estimates of Italian Military Strength—The Triple Alliance—Political Considerations—The Irredentist Faction—Prevalence of Gallophobia—Cause and Effect—The Italian Parliament.

"The Italians," writes Sir Erskine May, "have recovered their ancient franchises. The republics of the Middle Ages live again in the free municipalities of a constitutional monarchy." They live again; but possess in these later days that strength of union unquestioned, the absence of which denied them, six centuries ago, anything but an ephemeral existence in comparison with their relative superiority, intellectual and commercial, over feudal Europe. No longer distracted by feuds and factions, no longer tyrannised over by turbulent nobles or an insurgent democracy, Italy, for the first time since her more ancient glories, has the possibility of

developing all those varied gifts which Nature has so plentifully bestowed upon her, of extending and consolidating her power—military, commercial, and economical—and of making her name respected among the nations of the world.

Travellers in the Italy of to-day may study fanatically stick, stone, and canvas of a bygone age, but they too often neglect the realities of a human *renaissance* which must have so great an influence upon the future of Europe.

No one, however, who has closely watched the fortunes of Italy during the past decade will deny that the rapid progress made has been out of all proportion to that accomplished in other states in a like period of time; surpassing by far the most sanguine anticipations, considering the immense difficulties encountered on every side. Centuries of misrule had steeped the population in ignorance the most profound. The finances were disorganised or non-existent, economical improvements were at a standstill; every detail of government had to be entirely renovated or radically reformed. The civil service, the national defences, public works, customs, and the general communications of the peninsula, whether interior and local, or national and in connection with the highways of foreign commerce, these and many other often conflicting interests it became the positive duty of the state to construct, reform, or reinvigorate.

The arduous task was undertaken by the nation with praiseworthy and patriotic self-abnegation and with extraordinary activity and fertility of resource, while

the results obtained even in the limited period of time since the union are striking in their thoroughness and worthy of the nation. "The merit of success," said Signor Magliani, Minister of Finance in 1880, "is not due to us, but to the country, which is studying, working, and advancing, for without national progress any effort for economy must prove a failure."

It is a good sign that earnestness of thought and loftiness of purpose are displacing the old weary round of incertitude and inactivity. The doubtful dealings of Italian financiers in years of difficulty and general depression have given place to a more trustworthy financial system which has re-established Italian credit on a firmer basis.

"In estimating the agencies by which Italy was delivered from alien rulers and domestic oppressors," writes a Quarterly Reviewer, "we must perforce allow that both the men and the methods were revolutionary. Cavour laughed at truth and Garibaldi mocked at law. Duplicity and buccaneering were the two main instruments by which the Italians attained their honest and legitimate ends. Cynics and perhaps politicians will console themselves with the dictum, 'Qui veut la fin veut les moyens,' and the moralist who elects to preach a homily on the diplomatic double-dealing and the daring disregard of public law by which Pius IX. was reduced to 'a palace and a garden,' and Francis II. was sent to swell the ranks of 'les rois en exil,' has unquestionably an admirable theme, but will probably secure only a limited audience. Revolutions are not made with rose water; and if the aphorism that the end justifies the

means be exclusively the tenet of the followers of Loyola, the world at large, the English nation not excluded, is more of a Jesuit than has been generally supposed. But it wraps its theories in more skilful phraseology than the Spanish casuists, and borrowing the legal intellect for an accomplice it shrugs its shoulders and observes with perfect self-satisfaction, 'Fieri non debuit, factum valet.'"

That there is still much room for improvement in every department of the state is but a natural sequence from the anarchy of the past, but if the spread of education, commercial activity, deeply rooted patriotism, a complete mastery of the intricacies of finance and a strong voice in the councils of Europe are any proofs of strength, then Italy is strong, and strong as the republics of the Middle Ages never were, in the conscious strength of a well-organised union.

Of all the expenses necessarily incurred by the young kingdom, the annual sums voted for naval and military expenditure find least favour with the public opinion and the public press of other European states; but although in the majority of instances there may be an intelligent appreciation of the financial and industrial condition of the country, yet there is visible in nearly all these irresponsible utterances an acquaintance with the surface merely of the depths of Italian thought and polity, and a neglect almost amounting to ignorance of those deeper springs of feeling which quicken the lives of nations no less than those of individuals. Italy for the Italians! It is true, perhaps, but it is beside the question to protest that Italy is devoured

by ambition. A practical people may well be permitted to manage their own affairs without unneighbourly interference; and if the voice of the nation, expressed as it has been in a most unmistakable manner by various governments and all shades of opinion, remains firm and steadfast in its set determination to give all possible development to the naval and military forces, then it is a proof that Italy has done with foreign patronage and by no means always disinterested assistance. A country that has been shaken to its very foundations and has suffered so much in the past from the dominion of the stranger may well be excused if it takes every reasonable precaution against the recurrence of similar misfortunes.

"To exist," said Napoleon, "the first necessity for the Italian monarchy is to be a maritime power, in order to maintain its supremacy over the isles and defend its coasts;" and this train of thought is perceptible not only in naval matters but in all ideas pertaining to the defence of the kingdom. "Our first duty," writes an Italian, "was to exist, the next to think about the means of existence." "History proves," argues the Italian, quoting Jomini, "that the richest nation is neither the strongest nor the happiest: iron weighs at least as much as gold in the scales of military strength." A country situated like Italy, in the most favoured portion of civilised Europe, the scene of some of the most sanguinary and bitter struggles during the military despotism of the last century, co-terminous with two powerful military states, and with interests which may at any moment clash with those of her

neighbours, must be strong to be respected; from the very nature of things it may be affirmed that for Italy a small army means an insufficient force. It is an old maxim of the princes of the House of Savoy that "neutrals are generally sacrificed, and that peace is always made at their expense."

If we consider for one moment the comparative cost of continental armies, we find that the actual military burden on the national income is considerably lighter than that of other European states. Italy, with an annual budget of about 1,600,000,000 lire, has a maximum military expenditure of 200,000,000 lire, or one-eighth of the total expenditure. Russia, on the other hand, expends one-third of her total annual income upon war preparations; Germany, one-fifth; France, one-fifth; and Austria, one-sixth. This comparison alone is sufficient to shake the arguments of those who level their shafts at the "excessive military extravagance" of successive Ministers of Finance.

"The army of Italy commands respect," writes General Baron Haymerlé after a long residence at the Court of the Quirinal in the capacity of Austrian military attaché; while another military authority across the Western Alps remarks: "L'armée italienne, dont l'organisation si bien étudiée est à present si remarquablement avancée, sera, je crois pouvoir l'annoncer, *incommode* aux adversaires qu'elle rencontrera dans les guerres à venir." *

But it is not alone in its external effects and actual fighting power of big battalions that the worth of the

* "L'Armée Française en 1879," p. 435.

army must be judged. It is of the greatest importance in forwarding the education of the illiterate masses, in destroying the strife of factions and in consolidating the unity of the kingdom. "The army," wrote the Prince de Ligne, "is the base of the social edifice, a guarantee of the nationality and independence of a country, the school of patriotism." The army is the main reconstructive agent for the regeneration of the people of Italy.

In Germany the union had long been foreshadowed and prepared by the Zollverein, and the fusion of personal and material interests. In Italy there was the army alone to perform this all-important *rôle*.

General Baron Haymerlé has netly summed up the objects aimed at, the difficulties encountered, and the results obtained, in his celebrated brochure, "Italicæ res":

"After the cession of Venetia and the events of 1866 the union of Italy was nothing less than a reality. If, however, the exterior of the edifice was completed, the interior showed defects by no means satisfactory. The fusion of seven small states into a single kingdom could not be easily accomplished. The union of the various legislatures; the abolition of inveterate customs, a second nature to the population, but incompatible with the new order of things; the troubled state of dynastic sympathies and material interests; the necessary imposition of heavy taxes, weighing more particularly upon the southern provinces; the introduction of compulsory military service even in those provinces which altogether rebelled against it; lastly a series of less important reforms, but not the less felt, since they

interfered with the private lives of citizens; such were the motives which threw the nation into an extraordinary state of agitation, the more to be feared since it was fomented by the enemies of the new government belonging to the educated classes.

"What knowledge had the Calabrian of the Lombard, the Sicilian of the Piedmontese, the native of the Basilicate of the Tuscan? How could the rural population —with no horizon but their daily labours—appreciate the new régime, which pitilessly deprived them of their modest savings, seized their sons for the service of a stranger king reproached on every side for having made the Pope a prisoner, despoiled the Church, and brought down upon himself the malediction of all good Catholics? What mattered to the peasant the union of a country unknown to him—a union which did not ensure his personal existence, which carried off his sons to die perchance in a foreign land, and in every way rendered his life more wretched? This situation rendered the task of the government by no means easy. The resistance, passive at the outset, soon became active under the form of a brigandage tinged with a political colouring. Brigandage, indeed, could be promptly suppressed by material means, but to conquer the passive resistance administrative measures could alone be relied on, combined with the influence of authority and the force of habit—but all these methods were felt to be far too distant in their possible results. Compulsory military service could alone lead rapidly to the desired ends, bringing each day into immediate contact races absolutely unknown to each other, and inculcating the

idea of a great national family stretching from north to south.

"It was felt that a severe discipline would create a sentiment of duty in general, and of duty towards king and country in particular, that the civilising regularity of military life would bring even the most uncultured recruit from the mountains of Calabria to comprehend the scope of the results obtained, and to imbue his compatriots with the ideas engrafted in himself. Thus, by many thousand voices, the idea of a great state of which everyone formed a unit permeated rapidly among the lower social strata—the idea of a powerful community including every Italian—and by these means the action of the government was singularly facilitated. The nation and the army exercise on one another a reciprocal influence, the happy effects of which are everywhere felt, and to-day the army has become the most popular institution of Italy; a matter apart from all the varying vicissitudes of party strife."

Universal conscription may have very material disadvantages in checking the industrial growth of a country which has unavoidably accepted its burdens and responsibilities, but in Italy, at all events, there has been a great moral gain from the acquiescence of the people in a stern necessity, for it has annihilated the disastrous power of particularism, educated the masses to a common understanding of their national aims and objects, and established, not a class distinguished by the rampant insolence of a dominant militarism, but a purer patriotism and an honest feeling

of self-reliance throughout the length and breadth of the land.

It is the universal opinion of Italians that their country, both from its geographical position and its national aspirations, requires a strong voice in the councils of Europe, and for this reason every effort made to give increased force to the army and navy, and increased political prestige to the ruling powers, is hailed with universal acclamation and satisfaction. There must indeed be a strange feeling of chagrin among Italians when they remember that, since the battle of Legnano in the twelfth century, their military annals register not one single-handed victory won as a nation. "We require," writes an Italian,* "a force well found in arms and in material of war, well commanded, and of sufficient numerical strength to correspond with the politico-strategical situation in which Italy will one day be certainly called upon to operate." To fulfil this object has been the ever-present thought of a succession of capable war ministers, each in his turn perfecting, with all the means at his disposal, the organisation of the armed forces of the country. If we find on examination that there are some defects and incongruities in the existing state of affairs, the whole system must not be condemned off-hand, for in the case of Italy purely military considerations have had to give way to national requirements, moral, social, and political.

Events are moving rapidly. It must be a matter of the gravest import and interest for the diplomatists and statesmen of Europe that the military organisation of

* "Alcune Quistioni Militari," 1882.

Italy is advancing by leaps and bounds until from a purely defensive movement it threatens to become an active factor in the militant politics of the future.

"Economies made in the war budget during a long period of peace are suddenly lost in a few days of war." It may be hoped that the inherent caution of the Italians, in spite of the love of their race for fine phrases and rounded periods, will always cause the remembrance of this saying of Von Moltke to overcome the impetuosity of the ultra-national party. The shifting breezes of Italian diplomatic designs do not allow this question to be altogether a matter of certainty; we must consult Italian ideas and desires in order to more accurately judge of the march of events in the future. Two brochures* published in the last few years, notable in themselves for considerable knowledge and critical acumen, are still more valuable as guides to the change which has latterly come o'er the spirit of the dreams of politico-military opinion. The first writer is far more cautious and reserved in his opinions and conclusions than the second, just as the popular aspirations and hopes of the country were less pronounced in 1879 than in 1882. He writes that, in his opinion, and at that date, it was the generally accredited opinion the war formation of the army was "harmonious and symmetrical, corresponding to a moderate and discreet war footing which no one certainly would propose to increase." And yet it was increased, increased within a year from the date this

* Appunti sulle nostre Condizioni Militari. Roma. Alcune Quistioni Militari. Roma.—Capaggini e C.

brochure was published, by a force equal to one-sixth of the entire army in first line. The ideas too changed with the times, and with greater strength came more advanced opinions. The author of "Alcune Quistioni Militari" sums up and concludes as follows: "To the country we say, provide once for all and sufficiently for the army and the fleet, for there is a breeze rising in Europe which may be the sign of a tempest, the violence and extent of which no man may safely foresee. Italy should be on an equality with all the great states of Europe, having not only a firm voice but a strong voice in all the grave questions agitating the world, such as a nation of twenty-nine millions of inhabitants has an undoubted right to, situated as it is in such a happy geographical position, the cradle of two civilisations, alone among European nations possessing a great ancient and a great modern history. It is necessary for Italy to affirm her political importance, and this can only be done with the sword. It is necessary that both country and Parliament be persuaded that the army and the fleet are not institutions of variable strength and value, increasing or diminishing in importance to suit the ups and downs of politics; it is necessary to stigmatise once and for all the crusade against the 'unproductive expenditure.' Above all let that ignoble comedy cease of neglecting the army when there is apparently no need for it, to soon afterwards claim its abnegation and valour as dangers approach. Military institutions suffer more than any other from the ill-effects of change in the political and economic life of a country, and therefore great care should be

taken in the handling of them; great and certain results are only to be obtained by patiently-devised and long-considered schemes. By this it is not intended to affirm that the military power of a state should never undergo changes, it would be both a political and an economic error to say so, but there is a maximum limit to the strength of military institutions, as there is a minimum limit to their restriction. The minimum limit should be given in the possibility of making an active defence of the fatherland against any possible enemy. The maximum limit is given by the political objects which it is desirable to gain in a time more or less distant, by the help of the offensive action of the armed forces, by which it is intended to say that the extreme limit varies in proportion with the offensive forces which the country desires and ought to create in support of its international politics. We desire to see the new military laws based on these principles, so that Italy may always be ready to undertake a defensive campaign vigorously and completely, but further be enabled to prepare the elements for an offensive war whenever political exigencies may require it."

Italy is to-day in a position not a little analogous, from a military point of view, to that of Prussia in 1860.

A few months before the days when the astonishing successes of the German invading hosts filled the whole world with wonder, the total strength and heavy effectives of the armies across the Rhine were only known to a few specialists, while to the majority of the soldiers and statesmen who guided events, Prussia was the Prussia

of ten years before—as then considered—a third-rate military power. Had the excellence of the German armies been then the matter of notoriety it is to-day, had the rapidity of the schemes for mobilisation, the instruction of the reserve troops, the power of the artillery, and the true worth of the Bavarian, Wurtemburg, Saxon, and Baden levies been properly appreciated, then a great country would have been spared the dire mishap of national humiliation. If such deep-laid schemes, opportunities, and means for aggrandisement do not exist in Italy—and every analogy drawn from history must be somewhat misleading and incomplete—it is still none the less remarkable that public opinion altogether underestimates the value of the actual fighting forces of the country, and may therefore easily find itself in opposition to alliances of little-expected power and extent. Certainly, a perfect facsimile of the German model is out of the question for the present, whatever may be the aspirations of Italian military organisers for the future. The moral and social regeneration of the people must be slowly accomplished step by step before the rough material can be hewn and fashioned into a perfected semblance of that stern, grim array directed by the soldier house of Hohenzollern.

The tripartite treaty of guarantees recently concluded between Germany, Austria, and Italy, marks the commencement of a new era in the politico-military history of the latter state. It is not from the actual wording of the agreement that we desire to draw any conclusions—the existence of this or that treaty has become more a question of material interests than of

international honour—but it is from the fact that the two great military states of Central Europe should have decided to admit Italy to their intimate friendship, that we would wish to adduce proof that military Italy now holds the balance between the weight of two opposing parties. It is the old story, *La force prime le droit.*

The political horizon is overcast; Eastern Europe will certainly not long escape a violent convulsion. Italy, like other states, will have to boldly face the situation.

It appears to be this. Austria must either elect to rule her future empire through Slavs or Hungarians. In the former case Russia may be outwitted, for the protecting ægis of the northern power is invoked by southern Slavs from self-interest and not from sentiment. In either case the Austrian watchword will be *Drang nach Osten!* The interests of Germany consist in isolating France and Russia, in gradually pushing Austria eastward, and in Germanising the whole of South-eastern Europe. Whether the Germans of Austria gravitate by a natural law of nature to the German Empire sooner or later, depends upon events; it is certain that they must do so eventually, and that a Greater Germany may stretch from the shores of the Baltic to the Black Sea.

Flanked by Germany and Italy, Austria will have every chance of success in her eastward movement; but there will be lions in the path. Russia will oppose the scheme by all the means in her power—by enlisting the vanity of France, the ambition of Greece, the semi-

awakened national dreams of the autonomous states of the Balkan peninsula, and by intriguing within the boundaries of Austria herself. The result will be vital for Europe. One of two events must occur. Either a greater Germany will be founded which will combat and counterbalance the weight and aggressiveness of seething Panslavism, or else the Colossus of the North will gain his ends, and attain absolute and unquestioned supremacy; while, as a corollary, France will overrun Italy, Northern Africa, and Egypt, and endeavour, with Russia, to oust England from her Eastern possessions. Italy cannot hesitate between the two alternatives, and her future policy must of necessity be actively or passively hostile to France.

It is well for the dynasty and the nation that the triple alliance affords Italy a suitable opportunity for an explicit and unambiguous condemnation of the untiring but insubordinate Irredentists. If, like Faust, Italy has regained her youth, she is able, unlike the German doctor-magician, to retain her rejuvenescence without keeping her compact with the revolutionary demon. The Trentino, Trieste, Corsica, Malta—these and other districts of less affinity and connection, and with still less regard for the newly established monarchy, the fanatical and ultra-patriotic Italian in his heart desires to see "restored" or rather annexed to his native country. Although it seems but a short time since the far-famed Thousand set foot on the shores of Sicily, a red-shirted volunteer army of fanatical patriots, led by a brave guerrillero, would to-day be an anachronism, and impotent as a factor in the solving of national problems

under the more assured reign of King Humbert. It is not from the material power of the extreme party that anything is to be expected, more especially as to-day there are no men of preponderating authority in the party; it is more from the guidance to be obtained as to the hopes, aspirations, and possible attempts of the popular party, that some attention should be paid to their harangues. The history of Italy during the last half-century shows that the more cautious and statesmanlike intentions of a Cavour can be foreshadowed, assisted, and to some extent carried through by the irresponsible activity of a Manin, a Mazzini, or a Garibaldi. At the present day these popular manifestations are instantly suppressed, since they do not coincide with the policy of the time, but their recurrence justifies notice, since such organisations can readily be worked upon by unscrupulous men, and certain ends by their means assisted and perhaps attained, with no loss of credit, or suspicion falling on those in power.

Gallenga, in "Italy Revisited," writes: "The estrangement of Italy from France does not merely spring from the attitude the French chose to assume towards their south-eastern neighbours after the calamities of 1870. The Italians begin to be weary and ashamed of their long submission to French schooling. For centuries, but especially within these last eighty years, they either read nothing or read French. Nothing but French ideas made their way into the country, and it was only through a prism of French colours that Italy caught a glimpse of the

Transalpine world. But the leadership of France, her democracy, her clap-traps of 'Liberty, Equality, and Fraternity,' were found to have led the Italians far from the paths which it was good for them to tread. Their cause was simply that of national independence. There was no reason why subversive political and social questions should be mixed up with it. . . . Since the occupation of Rome and the death of Mazzini, rampant democracy has lost ground. The Italians are certainly the most prudent politicians on the Continent."

In spite of this prism of French colours that has been held before Italian eyes, the most constant tradition of Italian literature from Macchiavelli to Mazzini has consisted in an antipathy to French character and *esprit*. This "most presumptuous, superficial, and charlatan country," this "Francia scelerata e nera," as Leopardi has described it,* has often to listen to words of scathing satire and of undisguised hatred from across the Alps.

This misogallism is deserving of very serious consideration, for it explains to a great extent not only the Italian diplomatic line of action in current events, but also the military preoccupations of the country. Misogallism in Italy is no mere scurrilous scribbling in reptile prints, but a very earnest and well-considered reality. If we consult the list of works mentioned

* "Taccio gli altri nemici e l'altri doglie,
Ma non la Francia scelerata e nera
Per cui presso alla soglie
Vide la Patria mia l'ultima sera."

La Politica, First Edition.

below,* we shall further understand that this feeling is the subject and foundation of an extensively developed school propaganda, as M. Brachet, the laureat of the French Academy, has already pointed out.† Von Stein, in "Die Lehre von Heerwesen," gives it as his opinion that "Every nation conscious of its true worth must look at war as the fundamental object of the state, at victory as the only serious and true honour." We might almost believe that Italy has been won over to this opinion if we based our researches on current Italian literature alone, for press, periodicals, and caricatures abound with hostile and embittered allusions to France and the French, certainly not calculated to improve the relations between the two countries. And there are elements of discord on the other side of the mountains. With all the freethinking, socialistic tendencies of the modern democrats, the Extreme Left in France has neither forgotten nor forgiven the storming of Porta Pia on the 20th September, 1870. It is another Sedan. Happily for Italy, there is little to be feared from what passes for a government in France to-day. For what miserable impotence has this beatified Republic led to! Intolerance at home, discredit abroad—such is the sum total of the gain of France from thirteen years' experience of the ever-changing rule of a succession of

* "Nuova Collezione Scolastica." V. Gioberti Barberà. Florence. Sixth Edition. 1879. "Antologia Italiana." Roma. Sixth Edition. 1880. "Antologia della Prosa Italiana." Puccianti. Roma. Seventh Edition. 1879. "Abbecedario ad uso della scuole d'Italia." Zecchine. Leghorn. Sixth Edition. 1879. "Nicolo Macchiavelli. Vita di Castruccio Castrocani." Turin. 1875.

† "L'Italie qu'on voit et l'Italie qu'on ne voit pas."

lawyers and doctors. With the influx of the rural inhabitants to the towns, and the rapid decline of population in these centres where the doctrine of Malthus holds sway, quickened by immorality, the child of atheism, it is not to be wondered at that statisticians affirm that within fifty years the population of France will be numerically inferior to that of Italy; that in fact, difficult as it must be for them to realise, the restless descendants of the warlike Gauls will have to rest content with the status of a second-rate power.

Only one circumstance can change the natural current of events. Let one strong man arise in France —be he emperor, king, or consul—let him bring home to the minds of his compatriots the folly and unwisdom of the freethinkers' campaign against all religion, let him make common cause with Ultramontism, enlist on his side two hundred millions of Catholics, and raise the standard of Guelphism against Italo-German Ghibellinism, then indeed the aspect of affairs would alter, and the triple alliance of Germany, Austria, and Italy be in imminent danger, for internal disruption would threaten the vitals of each state. But he would be a rash man indeed who would prophesy the events of to-morrow in France. For Italy, the chief loser from any conceivable combination of France, Russia, and Ultramontism, it is a wise and far-seeing policy to draw closer the bonds of friendship with other states equally bound by natural laws to stand upon their guard against the hostile machinations of the great disturbers of the peace of Europe.

It is a frequent cry with those who view with patronising friendship or ill-concealed displeasure the gradual consolidation of Italian unity, that the peasant classes are ground down by intolerable taxation, that physical degeneracy and moral depravity are resulting from the effort, sustained with difficulty, of supplying the money for the "absurd" armaments demanded by parliamentary quidnuncs, trembling in their shoes at every cloud on the political horizon.

Plausible but delusive argument! So easily backed up by a mass of evidence, and yet so hollow and unreal.

The reports that have lately been issued by commissions charged to examine all details of the social and material condition of the rural population of Italy, do not at all confirm the darker shades of these and similarly overdrawn pictures.

We deny neither the ravages of the *pellagra* nor the strain of the *imposta fondiaria* or tax on real property, but we fail to perceive in any of the domestic questions agitating Italy any social problem impossible of solution.

The whole question is an immensely important one for political economists, but we shall only consider it in its wider bearings and pass it by with a few general remarks.

We must begin by classing the *mezzadria* system, simple, patriarchal as it is, with many other half-feudal customs, excellent in relation to man and man, but incompetent to bear the strain of foreign competition in its own market.

This arrangement, which consists in locating a peasant family in a holding on condition that a part of the produce in kind shall be handed over to the landlord, is certainly productive of an excellent feeling between the owner and tiller of the soil, while at the same time absolute poverty is seldom or never discovered in regions where the custom holds good.

But it is not calculated to obtain from the soil all that might be obtained: imperfect and inferior agriculture must inevitably accompany every attempt at farming when both intelligence and means are wanting to call into requisition the mechanical appliances of modern science.

We admit that there are three menacing features in the condition of the agricultural classes: these are, mendicity, the *pellagra*, and emigration.

The two former questions are far from being irreparable evils, but the process of social improvement must necessarily be slow and laborious; perhaps it is something that there has been no deterioration of late years. We fail to find cause of serious alarm for practical politicians in reports and facts adduced by the most alarmist writers on these and similar subjects.

But the rapid spread of emigration may entail consequences in the future which at present can be only dimly foreshadowed. There is already a very considerable annual migration of Italian working men to Germany, Austria, and France, where we find the longest hours and the hardest work on roads and

railways undertaken by Italians; but at the end of the season the stream of labourers returns to rest and spend its gains upon Italian soil.

Until we find that ebb and flow cease to succeed one another in this surging stream, we may speculate as we choose upon the effects of a sudden mobilisation as regards these yearly absentees; but we must not ascribe too great an economic influence to the annual deprivation of Italian soil for a certain period of such a small proportion of its labouring hands.

An indictment of "physical degeneration" is as easily brought against a nation as it is difficultly substantiated. We shall presently show by statistics that it is not over-taxation that causes an indifferent growth and development in certain regions, but simply ethnic peculiarities which cause the races of the peninsula to differ widely in physical capacity; while again, it will be apparent that these regions where the worst physique predominates are precisely those that are *least* taxed for these much-abused ships and soldiers.

The *catasto*, or Government survey for the purposes of taxation, undertaken in different parts in widely differing methods, weighs unfairly upon certain provinces, for we find that in the Piedmontese, Lombard, and Venetian provinces the direct taxation is often as much as seventy-five to nineteen in Tuscany, Sicily, and the southern provinces of the peninsula.

This unprecedented economical anomaly is maintained simply because the southern, or more lightly taxed provinces, return a larger number of deputies to

Parliament, and these are able, by the sheer weight of their votes, to swamp all the reasonable demands of the northern deputies.

There is certainly ample matter to fix the attention and occupy the minds of Italian statesmen in all these social and agrarian questions, but there is no cause for uneasiness concerning the future welfare of the young kingdom.

We need only point to the recent abolition of the forced currency to demonstrate the rapid strides that the country is taking on the path of progress.

In sum, it is less remission of an "intolerable" taxation that is required than *equalisation* of the burdens borne.

The unsatisfactory conditions of Italian parliamentary routine have caused many to deny the practicability of the formation of any combined and strong Ministry in time of trouble, and in fact to count upon political schism as the first consequence of overt acts of diplomatic hostility. But the Italian Parliament has no parties in the English sense of the word, it has only groups, divided in so far that each minor constellation has reference to some particular central and brilliant star, and that a peace Ministry alone is firm which can succeed, not merely in gaining the triumph of a group, but in combining several very dissimilar elements. But these groups, while fiercely joining battle in the parliamentary arena, remain steadfast and true to the cause of patriotism, to the House of Savoy, to liberty, and to the constitution. It is

enough to breathe a suspicion of foreign hostility, and the war spirit of the country speaks from the mouths of all; party animosities and regional envy and malice will assuredly give way before the stirring considerations of a great state policy.

CHAPTER II.

SUMMARY OF RECENT MILITARY REFORMS.

The Army and the Nation—Universal Conscription—The German Model—Army Reforms attempted by Generals Di Revel and Bertolé-Viale—General Ricotti's Reforms—Motives for the Drafting of Fresh Projects in 1872–3—The Laws of December, 1874—Important Points Decided—Short Service, the One-Year Voluntariat and the Army in Third Line—Short Service, Mean Duration in Italy and Elsewhere—Increased Responsibility of the Individual Soldier under Modern Conditions of Warfare—Local Conditions Unfavourable for Training in Italy—System of Administration and Command up to 1877—General Mezzacappo's Reforms—Reorganisation of the Mobile Militia or Army in Second Line—Maximum of Efficiency now Attained—General Ferrero's Reforms—Admitted Defects in Organisation—Projected Additions to the Active Army—Main Cause of these Additions—Law on the Organisation of the Army and Administrative Services, November, 1881—Increase Effected—Results Obtained from the New Laws—Objections to Them—General Concurrence in the Leading Principle of the Laws—Modification of the Recruiting System—Consolidation Necessary.

Just as, a few years ago, the very name of Italy was little but a geographical expression to the diplomatists and statesmen of Europe, so too the army of Italy signified nothing to the leaders of the conscript armies

of the Continent, save that perhaps by its name it conjured up dim visions of the past glories of those invading hosts so often and so brilliantly led to victory on Lombard plains by the most colossal genius of modern warfare. Now all is changed, and the army of Italy, expanding in equal degree with the recovered strength and vitality of national progress, has grown to be a very real force in continental Europe. In the Mediterranean, in Northern Africa, and in the fermenting states of South-Eastern Europe, in fact in all the nearest and most burning foreign questions, the statesman has a new factor to reckon with, the soldier a new force.

Here there are no phantom, no despicable desiderata for power: a fertile soil, an enterprising and patriotic spirit in the people, a growing interest and increased share in essentially national aims and objects, a long seaboard to supply recruits for commercial activity and maritime efficiency; in fact, the machinery for active national life, both moral and material.

Nations, no less than individuals, can escape the responsibilities of power. For Italy it was by no manner of means a possibility that she could avoid the acceptance of those varied burdens that were but a natural corollary to the union, for the young kingdom was on its trial before the tribunal of Europe; her action was narrowly watched, and her future influence gauged by the method in which she grappled with the stern logic of contemporary events. There were enemies both within and without; foreign plotters, to whose reckless ambition the union of Italy meant an additional check upon an unsated lust of conquest; enemies in

Italy herself, perhaps the bitterest of all, for to them the union meant the annihilation of fondly cherished ideas, social, political, and religious, and with these no compromise was possible.

Lastly, to understand aright the true drift of past and current events, it must be borne in mind that reliance upon the abstract sentiment of the undying brotherhood of the Latin race was, to the far-seeing statesmen who consolidated Italian power, but a mythical, unpractical superstition, unworthy of the serious consideration of practical men. It is sheer waste of time for dreamers to expatiate upon the international sympathies soldered together by mutual victories and alliances which are so erroneously supposed to have fostered a spirit of gratitude to France for Solferino, to Prussia for Sadowa. Diplomatic disclosures have sufficiently revealed the fact that no power has yet materially assisted Italy *pour ses beaux yeux* alone, but in furtherance and in pursuit of its own solid and substantial interests.

Of all the duties incumbent on continental powers that of universal conscription is confessedly the heaviest, far-reaching in effect, incalculable in its results upon the growth of a nation. The comparative ease with which this all-important change was accomplished in Italy proved that the ground had long been prepared beforehand for the event. Certainly there were opponents to the step, but even the most uncompromising were silenced by the startling events of 1866 and 1870, by the lightning-like rapidity and the overwhelming successes that everywhere distinguished the German arms.

The reforms most intimately connected with later changes, influencing by their results for good or evil the after action of military organisers, may be said to date from the crushing disasters of the Third Empire. Italy was fortunate indeed in the season of her great army reforms. She was untrammelled by clogging superstitions or a feverish love of change; it was not a question of tinkering here and there, nor of subservience in army matters to party policies or the personal proclivities of a favoured few. She had a grand model to work upon, a nation that Antinous-like had arisen yet stronger from a death-struggle with one after another of the most renowned military states of Europe. It was a great opportunity for a young kingdom aspiring to so much, for whatever may be the opinion about the "thousand and three" perfections claimed for the German army, there can be but one about its interior organisation.

It is unnecessary to trace throughout their various developments the military annals of the forces of Italy. It is enough for the present purpose to state that the solid battalions of the old Piedmontese army formed the primary basis of military architecture in Italy, and that the deeds of the men of the Tchernaya will be recorded in the opening chapters of future histories of the Italian army.

Happy indeed for Italy that she has possessed in her Ministers of War and Marine a succession of indefatigable public servants who, ably seconded, have given proof of heads to devise, of hearts to dare, and of hands to execute.

After the demoralising turn of events at Custozza and Lissa we must note two unsuccessful efforts to extend and reform the organisation of the army.

In 1867, General di Revel, Minister of War, laid a scheme before Parliament for the creation of an army reserve, and again, in 1869, General Bertolé-Viale brought forward an extensive army programme, placing the total force at 624,000 men. Neither of these projects was finally approved, but they assisted in paving the way for the reforms that were to follow.

In 1871, General Ricotti, then Minister of War, brought forward an army reform bill, distinctly affirming the duty incumbent upon all Italians of military service, together with the suppression of substitution, so largely responsible for the exposed weakness of French organisation.

It is unnecessary to give elaborate details of this patiently-devised scheme of the man who may be called the father of Italian army reformers: it is sufficient to glance at the actual results obtained. An army was formed numbering 500,000 men in first line (including 200,000 men on furlough), with a second line, or mobile militia, of 250,000 men, or a total strength of 750,000 men. Figures give but a poor idea of any military reform; it would be a mistake to suppose that this considerable force was immediately fashioned ready for action, but in any case the net gain from the laws of 1871 gave a very respectable result. The real worth of General Ricotti's early reforms lay in the fact that they definitely established Italian military organisation on a firm and lasting basis, and that even if, in detail,

changes and improvements have altered much of the system of 1871 beyond recognition, still the foundation remains unimpaired, the whole structure has shown a wonderful capacity for extension and development, and has been improved and extended, always on the old lines, as the united science and intelligence of the nation has been brought to bear upon the subject.

The system, in its entirety, remained intact for three years, but meantime a full consideration of the question had shown that further improvements were indispensable.

The many interests of modern society had been conciliated by the one-year voluntariat, but a number of abuses had crept into this system. Again it was universally felt that some steps should be taken toward the formation of at all events the nucleus of a national landstürm as a last great reserve in case of invasion.

The new reforms were wide in their scope and application, and embraced a variety of changes in all departments and branches, for the parliamentary action of military critics had now become keen and searching. The new schemes were presented to the Italian Parliament in December, 1872, and November, 1873, but as they were of inordinate length the commissions charged to examine their contents were unable to conclude their task satisfactorily in a reasonable time. General Ricotti and the reformers of the day abandoned therefore the idea of a radical change, and determined to rest content with immediately proposing and carrying out the most indispensable modifications of existing laws, in order to satisfy the pressing requiremenst of

the day. The laws that bear date December, 1874, cannot therefore be called radical reforms in any sense, but modifications only of existing statutes. They aimed at the definite settlement of three important points in particular: (1) The reduction of service in the ranks from five to three years; (2) the one-year voluntariat; (3) and the formation of an army in third line, or territorial militia. The overthrow of the Lanza Cabinet, on account of the hostility of S. Sella to General Ricotti's reforms, proved even more than the production of the measures themselves how determined was public opinion in Italy to brook no obstruction in the favourite schemes of national aggrandisement by army reconstruction.

The first question that we shall briefly touch upon—the reduction of service—had been to a great extent anticipated by the general dismissal of men to their homes after three years' service in the ranks with a good certificate of character. The Italians are no devotees at the shrine of short service, but they feel, as every continental nation must, that it is becoming more and more every day a question of the telling superiority of numerical strength. No European state, liable as almost every one is to invasion by hundreds of thousands of armed men in the space of a fortnight, can expect to place in the field an army that would not be crushed and destroyed by the sheer weight of these irresistible levies if it did not keep pace with its neighbours, and organise armies on a similar scale and in a very similar manner. Short service and large reserves alone furnish a means for the entertainment of heavy

effectives at a reasonable cost. In the case of the Italian army, a short comparison with the results obtained in neighbouring states will show that the reformers at Rome have out-heroded in rather a hazardous manner even the most advanced ideas prevalent elsewhere.

The total contingent annually incorporated may be set down at about 110,000 men; of these, 4,000 join the cavalry, and remain forty-three months with their regiments in place of the four years allowed by law; 61,000, reduced to about 58,000 on joining, are told off to the infantry, and instead of three years only serve thirty-one months; the remaining 45,000 nominally serve for five months, but, in fact, only receive a very insufficient training of two months. This gives a mean duration of twenty months with the colours for the whole contingent.

In France sixty-five per cent., forming the first portion of the annual levy, remain with the colours forty-five months in place of five years; the remaining thirty-five per cent., or second portion, serve ten months, with the result of an average service for the whole of thirty-two months.

In Germany sixty per cent. of the contingent serve thirty-five months, while twenty-six per cent. serve twenty-three months; the remainder are with the colours for shorter periods, varying with the nature of the employment, and reducing the mean service to about twenty-seven months for the total incorporated.

In Austria seventy-six per cent. serve thirty-nine months, a portion of these remaining only twenty-seven months in the ranks; sixteen per cent. serve for three

months, and the remainder for shorter periods, reducing the average service with the colours to about the same as that of the German contingent.

Certainly it is a fact generally acknowledged that southern folk are more quickly taught the elementary and mechanical duties of a soldier than the less ductile northerners, yet we might take it as a matter of grave doubt whether the period of service in Italy admits of a proper understanding of the word discipline, were it not for the laudable self-denying patriotism of the officers and men of the service. Only those who have closely watched the weary, monotonous routine of daily drill and exercise can understand with what fervour all ranks alike throw themselves into the work. The reduction of service in the ranks from five to three years met with no factious opposition from even the most ardent partisans of the quinquennate, for it was acknowledged to be a necessity, and one before which it was necessary to bow. But when from motives of economy the triennate, established as the minimum, was further reduced to thirty-two months, by the dismissal of the older class to their homes after the autumnal manœuvres in each year, a considerable opposition was manifested.

The change to no small extent demoralised public opinion, for people began to say that a month or so shorter or longer made little difference, and became quickly reconciled to the idea of thirty months, then of two years, then of eighteen months, and lastly of one year. It is difficult to set a term upon short service, we can nowhere find a hard and fast line laid down;

unless this is done quickly the moral and disciplinary part of the soldier's education, by far the most essential of all, will run the risk of consisting merely of a thin and little durable veneer.

The times are changing rapidly, and with every change comes increased responsibility for the individual soldier; successes are no longer to be gained by the sheer weight of steel-tipped columns, but by the activity, boldness, and intelligent initiative of individuals. If, then, the soldier is without intelligence, ignorant, and without a proper understanding of the true sense of military duty, he possesses to-day far greater facilities for bad behaviour, more difficult to check and more disastrous in its results than when both brave and timid spirits marched shoulder to shoulder in the solid mass of the Napoleonic column.

Not only in action, but in bearing the stress of a bitterly contested campaign, short service, unless rigidly regulated, allows semi-disciplined peasants but a poor chance of imitating the glorious deeds of their forefathers, for it is one thing for an army of half-trained youths to dash forward impetuously on the crest of a wave of successful invasion, another to bear up against weary months of hardships, sickness, and possibly disasters, with that solidity of duty and discipline which so gloriously characterised the less numerous but veteran armies of the past, beaten perhaps often but so seldom defeated! Therefore a country like Italy making bold use of this necessary but dangerous and double-edged weapon should be careful in its handling, for it may easily wound those who wield it unwarily.

Local conditions in the peninsula even yet more unfavourably militate against the short time passed in the ranks being turned to the best advantage.

Barrack accommodation is often indifferent, and the training of the troops in many of the larger towns suffers not a little by regiments and battalions being broken up into several detachments at great distances apart, causing much inconvenience and loss of time. Then, again, the actual localities occupied by the various corps, the endless and harassing duties for the public safety, detachment work and excessive heat in summer, all these special conditions, peculiar to the country, combine to cause great difficulties, not only in the formation and technical instruction of special troops, but in the general training and education of the rank and file of the army.

The one-year voluntariat is the second point in the laws of 1874 which requires a passing notice. While the personal obligation of all to military service up to thirty-nine years of age was distinctly reaffirmed in the scheme presented to the Italian Chamber, the principle did not absolutely exclude the one-year voluntariat, but simply minimised former abuses. To begin with, the one-year volunteers were permitted, at their own request, to be put back from service in the ranks up to their twenty-sixth year, in order to enable them to complete their various studies, forfeiting, however, in this case their right to draw for the second category, which would practically exempt them from all service. Doctors and ecclesiastics were included under this rule: the latter, after their year's

service, are usually taken as assistants in the various auxiliary branches of the army. It was further laid down that each man on joining should pay eighty pounds in the cavalry, sixty pounds in the infantry, while a certain degree of instruction was demanded; after the expiration of the year the young soldier might return to his home, but on mobilisation was to immediately rejoin his regiment. The necessity for this institution had been admitted many years before; and, all things considered, the laws on the subject passed in 1874 appear fair and reasonable.

But the most important point in General Ricotti's plans consisted in the formation of a territorial militia, or army of third line, to replace the old mobile national guard.

In the organisation of the Italian army, out of the entire contingent annually incorporated, about two-thirds form the first category, and serve eight years (including the time on unlimited furlough) in the active army, and four years in the mobile militia, the remaining third forming the second category, and serving nine years in the active army and mobile militia. Military service meaning a liability of nineteen years the territorial militia was formed by taking the last classes of both categories up to their thirty-ninth year of age, and adding the exempts of all classes, forming a new third category. The result was a gigantic paper force of over a million of men; for, hitherto, suitable instruction, cadres, equipment, and armament for this vast force have been far beyond the powers of Italian finance. General Ricotti contented himself with laying down

plans for the formation of cadres for, and the supply of arms to three hundred battalions, while the duties of the body were defined as consisting principally of coast, fortress, and interior defence.

A few more years of careful thought bestowed upon their new military organisation sufficed to show the Italians that the interior machinery of administration and command was somewhat wanting in mobility and simplicity, unworthy of the finished art of their chosen model, and in many ways capable of improvement. Glancing briefly at the system of administration and command, which held good up to 1877, we find:

(*a*) Seven general commands, or supreme military authorities, superintending the united efficiency of corps and establishments.

(*b*) Sixteen territorial divisional commands, forming the first large army units, tactically and administratively.

(*c*) Sixty-two military district commands, each consisting of a staff and some permanent district companies, forming the means for recruiting the army and mobile militia, giving the first training to recruits, keeping the lists of the troops, and completing them to war strength.

The laws on organisation, drawn up by General Mezzacappo, when Minister of War, and bearing date, 22nd March, 1877, aimed at:

(1) Decentralisation and mobility, by increasing the number of commands, directions, and great magazines.

(2) Simplicity, by arranging that peace generals should retain their commands in war-time, thus harmonising the peace-footing with the consequences of a sudden mobilisation.

For these ends were formed:

10 army corps or general commands.

20 territorial military divisions.

88 military districts.

Medical, commissariat directions, etc., in proportion.

In addition it was laid down as a principle that a magazine should be established as local conditions permitted at the headquarters of each army corps, for it was obviously dangerous to continue to place reliance upon the three great central magazines at Turin, Florence, and Naples, all of them unprotected, and two, at all events, liable to capture or destruction at the very outset of hostilities.

The army was now divided into tactical units, suitable to the mobilisable forces on the one hand and to the war formation of the first line on the other.

The next step in advance was the natural corollary of the preceding one, viz. the suitable tactical organising of the mobile militia, in order to create a true reserve for the active army in the field. Ten divisions in all were formed, consisting of one hundred and twenty line battalions, twenty battalions of bersaglieri, thirty batteries of field artillery, with engineers and accessory services; in Sardinia a very similar formation was given on a smaller scale to a brigade numbering 8,000 men.

The general result of these improvements in the organisation of the mobile militia was to create an efficient and reliable army in the second line, although the paucity of officers and total absence of cavalry were both severely felt. The reserve has now attained its maximum of efficiency, and numbers some 400,000 men

in their nine-twelve years of service for the first category (having been three years with the colours), and in their six-nine years of service for the second category (on furlough after forty-ninety days' training); two-thirds of the whole have served in the ranks of the active army, and each division numbers some 25,000 men on mobilisation. The effectives placed in line, in 1878, reached 150,000 men. The subsequent reforms requiring attention are exclusively the work of the present Minister, General Ferrero, who assumed the portfolio of war in May, 1883.

At the very beginning of his ministry he distinctly stated a number of points of particular importance capable of improvement, or, in other words, the then existing defects in the military system. These included: the training of the second category and mobile militia; the organisation of the territorial militia; the reorganisation of the artillery, engineers, and train; suitable regulations for the requisition of horses; increase in the number of horses per squadron in the cavalry; completion, as far as possible, of the fortifications on the frontier, on the coast, and at the capital. Here was a programme sufficient, it might have been imagined, to have occupied the most active and insatiable of organisers for years. It was the generally accredited opinion abroad that in one sense the extreme of military ambition had been reached for the time in Italy, and that further reforms would be directed, not to increase the already huge total of two millions of men on the lists of the controls, but to complete the inner machinery of the system, confessedly crude and imperfect

in many points, and in particular to perfect administratively and tactically the gigantic and unwieldy army in third line. Those who so argued were strangely taken aback by the events of 1881. Instead of a thorough consolidation of the existing organisation, further and considerable additions to the army in first line were projected before General Ferrero had been a year in office. These schemes for increasing the active forces resulted—according to the Italian school—from the very precise and accurately defined needs for resisting a hostile invasion, with a more especial regard, but not confessedly so, to the north-western frontier in particular, in relation to a possibly combined land and sea attack.

Of the important laws bearing date 26th November, 1881, that on the organisation of the army and administrative services is by far the most noteworthy, as it embodies those organic changes in the constitution of the service which so considerably augment the means of action of Italy.

This law gives a rapid summary, as it were, of the armed forces of the country, and amply repays perusal. We shall give the literal text of the most important articles, omitting minor details of secondary importance.

Chapter I. opens with general remarks:

"Art. 1. The royal army includes all the land forces of the kingdom; it is divided into active army, mobile militia and territorial militia.

"Art. 2. The active army is formed of troops of all arms, specified in Chapter II., permanently maintained in the service.

"Art. 3. The mobile militia is formed as shown in Chapter VI. In time of peace it only serves temporarily, for instruction, or to safeguard public order. In war time it can be called upon to co-operate with the active army on every kind of service. The mobile militia can only be called to arms by royal decree.

"Art. 4. The composition of the territorial militia is shown in Chaper VII. It is only called under arms in peace time for its instruction or for the sake of public security. In war time it is specially destined to form the garrisons of the forts and strong places of the kingdom; but, if necessary, it can be employed in field operations or any other military service. The territorial militia is called to arms by royal decree."

Art. 5 gives the hierarchy of the grades of officers, under-officers, corporals, and soldiers; while Art. 7 lays down that the organic constitution of the army "herein laid down" can only be modified by a special law.

Chapter II. deals with the active army.

"Art. 9. The active army includes:

"(*a*) The headquarter staff.
"(*b*) The staff.
"(*c*) The artillery and engineers.
"(*d*) The infantry and cavalry.
"(*e*) The royal carabineers.
"(*f*) The invalids and veterans.
"(*g*) The army hospital corps.
"(*h*) The commissariat.
"(*i*) The intendence.
"(*l*) The veterinary corps.

"Art. 10. The cadres of the corps of the active army are normally constituted in peace time with officers on the active list; the number of these is fixed by the present law, by arm, corps, and grade. This number, for each grade, can only be changed by a special law, but the division of officers between the various services can be modified by the laws of the budget. Officers of the auxiliary services and complement officers can be called upon, in peace time, to serve temporarily in the active army. In war time, officers of reserve can be called upon to serve in the active army."

Arts. 11 to 14 give the composition and the number of officers of different grades of the headquarter staff and the staff in general.

"Art. 15. The commandant of the headquarter staff has the title of chief of the staff of the army; in peace time the chief direction of the studies of the preparation for war are in his hands, under the authority of the Minister of War.

"c. Artillery and engineers.—Art. 16. The committee of artillery and engineers is the consulting body for the Minister of War in all questions concerning the service of these arms. It has no direct command, but it studies, on its own initiative, reforms that may assist in perfecting the services of the two arms, and lays its deductions before the Minister of War.

"Art. 17. The arm of the artillery includes:

"(*a*) The staff of the artillery.

"(*b*) 12 regiments of field artillery.

"(*c*) 5 regiments of fortress artillery.

"(*d*) 2 brigades of horse artillery.

"(*e*) 5 companies of artillery workmen and 1 company of artillery veterans.

"Art. 18. The artillery staff furnishes officers for the following services:

"(*a*) Secretariat of the committee of artillery and engineers.

"(*b*) Bureau for revision of accounts.

"(*c*) Territorial artillery commands.

"(*d*) Territorial artillery directions.

"(*e*) Directions of establishments.

"Art. 19. Each regiment of field artillery is composed of a staff of 3 brigades of batteries, of 10 batteries, of a train brigade of 3 companies, and a depôt.

"Art. 20. Each regiment of fortress artillery is composed of a staff, of 3 brigades, of 12 companies of coast or fortress artillery, and of a depôt. Two of these regiments have each a brigade of 4 batteries of mountain artillery.

"Art. 21. Each brigade of horse artillery includes 2 batteries, and is attached to a regiment of field artillery.

"Engineers.—Art. 22. The engineers include:

"(*a*) The staff of the engineers.

"(*b*) Four regiments, including 1 pontoon regiment.

"Art. 23. The staff of the engineers furnishes officers for the following services:

"(*a*) Secretariat of the committee of artillery and engineers.

"(*b*) Bureau for revision of accounts.

"(*c*) Territorial engineer commands.

"(*d*) Territorial engineer directions.

"Art. 24. Two of the engineer regiments are composed respectively of a staff, of 4 sapper brigade commands, of 14 sapper companies, of 2 train companies, and a depôt.

"Art. 25. The pontoon regiment has a staff, 2 brigade commands, 8 companies, a lagoon brigade of 2 companies, a train brigade of 4 companies, and a depôt.

"Art. 26. The other engineer regiment has a staff, a railway brigade of 4 companies, 2 brigades of telegraphists, forming 6 companies in all, 2 train companies, and a depôt.

D. Infantry and Cavalry.—Art. 27 gives the duties of the infantry and cavalry committee, almost word for word the same as Art. 16.

"Infantry.—Art. 28. The infantry includes:

"(*a*) The infantry of the line.

"(*b*) Bersaglieri.

"(*c*) Alpine troops.

"(*d*) The districts.

"(*e*) Discipline companies and penitentiary establishments.

"(*f*) Fortress officers.

"Art. 29. The infantry of the line includes:

"(*a*) 48 brigade commands.

"(*b*) 96 infantry regiments.

"Each infantry regiment consists of a staff, of 3 battalions of 4 companies each, and a depôt.

"Art. 30. The bersaglieri number 12 regiments, each having a staff, 3 battalions of 4 companies each, and a depôt.

"Art. 31. The Alpine troops are organised in 6 regiments, including 20 battalions, and a total of 62 companies. Each regiment is composed of a staff, of 3 or 4 battalions of 3 or 4 companies each, and a depôt.

"Art. 32. The number of military districts is determined by the law on the territorial system of the kingdom. The personnel of each district includes: a staff and 1 or 2 companies; in all 98 companies.

"Art. 33. The constitution and localisation of the discipline companies and penitentiary establishments are given in Chapter V.

"Art. 34. The fortress officers, destined for commands in the strong places of the kingdom, are chosen from the various branches of the army, but mainly from the artillery and engineers.

"Cavalry.—Art. 35. The cavalry includes:

"(*a*) 2 commands of divisional cavalry.

"(*b*) 5 brigade commands.

"(*c*) 22 regiments, each consisting of a staff, 6 squadrons, and a depôt.

"(*d*) 5 remount depôts.

"E. Royal carabineers.—Art. 36. The corps of carabineers includes:

"(*a*) The command of the force.

"(*b*) 11 territorial legions.

"(*c*) The cadet legion.

"Art. 38. The territorial legions are instituted to

safeguard public order. Each is composed according to the exigencies of its service.

"Art. 39. The cadet legion is a corps of instruction, where the recruits learn the special service of the arm.

"Art. 40. The corps of invalids and veterans includes a staff and 4 companies.

"G. Sanitary corps.—Art. 41. The sanitary corps is composed of:

"(*a*) Doctors.

"(*b*) Sanitary companies.

Art. 42 gives the duties of the permanent sanitary committee, similar in the wording to Art. 16.

"Art. 43. The doctors assure the sanitary service of the army, in the corps, military hospitals, sanitary sections, and field ambulances.

"Art. 44. The sanitary companies are twelve in number: their effectives in peace time correspond with the needs of hospital duties, keeping in view the resources necessary for the field sanitary service.

"H. Commissariat.—Art. 45. The Commissariat Corps has control, under authority from the Minister of War, of the administrative services generally, and, under authority from corps and divisional commandants, of the subsistence services, barrack accommodation and supply.

"I. Audit Department.—Art. 46. Officers of this branch of the service are charged with the pay department of corps, schools, hospitals, and central magazines. The subsistence service also forms part of their duties.

"Art. 47. The subsistence companies are charged with bakery duties, and partly with the meat supply

both in time of peace and in the field. They are twelve in number. Their effectives correspond with the needs of the service in peace time as well as with what will be presumably required in the field. The companies are commanded by officers of the audit department under the authority of the garrison commissary director. These officers are drawn exclusively from the ranks of the under-officers of the army.

"L. Veterinary Corps.—Art. 49. Veterinary officers have charge of the veterinary service and are attached to mounted corps, to remount depôts, to commands, and to schools where horses are kept for military duties."

Chapter III. deals with the personnel attached to the War administration.

"Art. 51. The personnel mentioned below is attached to the accessory service :—

"(*a*) Personnel of military justice.
"(*b*) Engineers, geographers and topographers of the Institute of military geography.
"(*c*) Professors and civilian teachers in schools.
"(*d*) Chemists.
"(*e*) Artillery guards.
"(*f*) Engineer guards.
"(*g*) Artillery and engineer foremen of works.
"(*h*) Permanent secretaries.
"(*i*) Engineer local agents."

Arts. 52 to 61 give details and tabular forms of the numerical strength and the grades of these various services.

The permanent secretaries, according to Art. 58, are employed in the various bureaux of the administrative

departments of the army; there is a graduated scale of pay for these men, but no rise in rank.

The engineer local agents superintend the construction of works entrusted to this service.

Chapter IV. treats of the schools, bureaux, and other establishments.

"Art. 62. The military schools of the kingdom are as follows:

"(*a*) The war school, created in order to develop among officers scientific and military accomplishments necessary for service on the staff, as well as for high commands and employments in the army.

"(*b*) Artillery and engineer school, to complete the technical instruction of the sub-lieutenants destined for these arms, after the course at the military academy.

"(*c*) The military academy, furnishing officers for the artillery and engineers.

"(*d*) The military school, furnishing officers for the infantry and cavalry, and the commissariat. A special school is annexed to the military school for under-officers, destined for the commissioned ranks.

"(*e*) The sanitary school.

"(*f*) Four military colleges, where young men are prepared for admission into the military school and military academy.

"(*g*) The infantry school, serving as a centre for the teaching of musketry, and certain other branches of military instruction.

"(*h*) The cavalry school, where sub-lieutenants of the cavalry complete their technical instruction on

leaving the military school, and where riding-masters are trained.

"(*i*) Three instruction battalions, furnishing under-officers for the infantry and the sanitary and subsistence companies.

"(*l*) An instruction squadron (at the cavalry school) supplying the cavalry with under-officers.

"(*m*) Two instruction batteries of artillery, training under-officers for the field artillery. An instruction company of fortress artillery.

"(*n*) Four instruction sections in the engineer regiments, supplying under-officers to this arm.

"Art. 63. The personnel for the superintendence of these various schools is drawn from the corps of the corresponding arms of the service."

Arts. 64 and 65 treat of the central audit department and central administrative department. There is nothing that calls for remark in the functions of these two bureaux.

"c. Military establishments.—Art. 66. The artillery and engineer establishments include: 2 arsenals, 4 small-arm manufactories, 3 foundries, 2 powder manufactories, 3 laboratories, etc.

"Art. 67. Three central magazines have in store the first supplies to distribute to the districts and corps for clothing and equipment.

"Chapter V. Penitentiary Establishments.—Art. 70. The discipline companies receive soldiers of various corps of the army who are unworthy to serve in their corps from habitual misconduct, or on account of some serious crime.

"Chapter VI. Mobile Militia.—Art. 73. The mobile militia is composed of:

"(*a*) Infantry.
"(*b*) Artillery.
"(*c*) Engineers.
"(*d*) Sanitary and subsistence services.
"(*e*) A special militia for Sardinia.

"Art. 74. The cadres of the mobile militia are formed of officers on the active list of the auxiliary service, of complement and of reserve.

"Art. 75. When the mobile militia is called under arms the laws and regulations of the active army are applicable to it."

Art. 76 lays down that men of the mobile militia can be called up collectively or individually.

"Art. 77. In case of a general or partial mobilisation of the army the mobile militia can be formed into brigades, divisions, or large units, either with its own troops or conjointly with the troops of the active army.

"Art. 78. The infantry of the mobile militia includes:

"(*a*) 48 regiments of infantry of the line, each of 3 battalions with 4 companies each.
"(*b*) 18 battalions of bersaglieri, 4 companies each.
"(*c*) 36 Alpine companies.

"The districts form the centres of formation and administration for the infantry of the line and the bersaglieri. The Alpine companies have the Alpine regiments for administrative centres, and the active Alpine battalions for centres of formation.

"Art. 79. The artillery of the mobile militia includes :

"(*a*) 13 brigades of field artillery, 4 batteries each, and 1 train company.

"(*b*) 32 companies of fortress artillery and coast artillery.

"(*c*) 4 mountain batteries.

"Art. 80. The various units of the mobile militia artillery have respectively, as centres of formation and administration, the regiments of artillery of the active army. A field artillery brigade and 2 companies of fortress artillery are formed in one of the districts of Sicily.

"Art. 81. These units are normally constituted with men of the first and second category, coming from the artillery regiments of the active army.

"Art. 82. The engineer troops of the mobile militia are divided into :

"(*a*) 5 sapper brigades, 16 companies in all.

"(*b*) 1 pontoon brigade, 4 companies.

"(*c*) 1 brigade of 2 companies of railway workmen, and 1 brigade of 3 companies of telegraphists.

"These units have the engineer regiments of the active army as centres of formation and administration.

"Art. 83. They are normally composed of men who have served in the engineers, but men of the second category can be taken if they have special aptitudes for the service."

Arts. 84 and 85 deal with the sanitary and subsistence companies. These troops form 12 companies

in each case, of men who have served in the same capacity in the active army.

"Art. 86. The special militia for the island of Sardinia is composed of:

"(*a*) 3 regiments of infantry of the line, each of 3 battalions of 4 companies each.

"(*b*) 1 battalion of bersaglieri of 4 companies.

"(*c*) 1 squadron of cavalry.

"(*d*) 1 brigade of field artillery of 2 batteries, and 1 train company.

"(*e*) 1 company of fortress artillery, with 1 mountain section.

"(*f*) 1 company of engineers.

"(*g*) 1 sanitary company.

"(*h*) 1 subsistence company.

"Art. 87. This militia is formed with all soldiers of the first and second categories on furlough, included in the district lists of the island.

"Chapter VII.—Territorial Militia. Art. 88. This militia is composed of:

"(*a*) 320 battalions of infantry, 4 companies each.

"(*b*) 30 Alpine battalions, forming in all 72 companies.

"(*c*) 100 companies of fortress artillery.

"(*d*) 30 companies of engineers.

"Art. 89. The cadres of the territorial militia are formed with the officers of this militia.

"Art. 90. The dispositions of Art. 75 are applicable to the territorial militia when under arms.

"Art. 91. The men can be called up separately or

collectively. In peace time they can be called up for military instruction for 30 days every 4 years. This period of 30 days can be divided between 2, 3, or 4 years.

"Art. 92. The battalions and companies of the territorial militia have the military districts as centres of formation, with the exception of the Alpine battalions, which are organised by the Alpine regiments or battalions of the active army.

"Art. 93. In case of a general or partial mobilisation the territorial militia can be formed into regiments or larger units.

"Chapter VIII.—Art. 94. The officers and men of the complement troops are destined to bring up and maintain at the war strength the corps of the active army and mobile militia.

"Art. 95. The complement troops are formed by the men of the second category of the classes not belonging to the territorial militia, and of those of the first category in excess of the regulation establishment of the various units of the active army and mobile militia. They can be employed upon any war services.

"Chapter IX.—Art. 96. The Minister of War can appoint superior officers to fulfil the functions of military commissaries of railways. The attributions and number of these functionaries are determined by royal decree after an understanding between the Minister of War and the Minister of Public Works."

Chapter X. treats of a few temporary dispositions of no particular importance. The last article, No. 102, abrogates the laws of 30th September, 1873; of the 15th March, 1877; and of the 27th July, 1879.

The law that we have here given, almost *in extenso*, remains the chief guide to the existing organisation of the Italian army.

The main result of the law in question is to increase the active army from 330,000 to 430,000 men, and the mobile militia from 150,000 to 200,000 men.

If this augmentation came as a surprise to foreign critics, it must be confessed that it was a consummation that had long been devoutly wished by the Italian people.

It had long been the universally expressed opinion that ten army corps were insufficient for the political, geographical, and military position of Italy. Certainly the new laws did not satisfy everybody. There were critics and opponents in plenty, but ultimately the reforms were carried by a large majority, since they were a step in the direction approved by all.

It was but another development of General Ricotti's original intentions. The ten army corps, while they alone existed, formed the extreme expression of the defence of continental Italy; the recent additions, by safeguarding the coasts and the flanks of the active forces, aim at enabling the army in the field to take the offensive without incertitude and anxiety concerning the defenceless state of the peninsula.

We must allow General Ferrero to develop the essence of the question in his own words:

"The geographical situation of Italy, its length so disproportioned to its breadth; the two important islands whose defence it is necessary to ensure; the obligation of concentrating the mass of our forces in the valley of the Po, where the enemy can attack us

in superior number; then again the necessity for maintaining, during the first period of the war, on other portions of the country sufficient forces to make head in good time against possible debarkations; the utility of having the means to prevent or successfully combat such enterprises on account of the considerable influence they might exercise upon the general course of the war; the little confidence one could place, in such a case, in diversions made by troops drawn from the main army, and the inevitable confusion that would ensue in the movements of concentration: all these considerations form so many highly important factors, which it is absolutely indispensable to take into account when it is a question of establishing a definitive organisation for our military forces. I repeat it, we must be forearmed against all surprises on the coasts. If an enemy, utilising his powerful means for maritime action, which daily increase, can succeed in transporting large numbers of men to any given point of our peninsula, we must be beforehand with him, and be able to establish ourselves solidly without waiting for assistance from the valley of the Po."

Again, commenting on the opposition scheme for increasing the effectives of companies and squadrons instead of army corps, General Ferrero made use of the following remarkable words:

"The first of these schemes only gives us an increase of tactical power; with the second, however, we gain at the same time a great tactical and a great strategical power. This is the essence of the question, and this is the motive that has induced me to adopt

the second system, which, independently of political considerations, is suggested by exigencies of defence. And, in truth, although it is incontestable that Italy can only be attacked in considerable force on her land frontier, still it is none the less true that her peninsular territory may form the objective point for important diversions, susceptible of exercising a considerable influence upon the main operations. Consequently we must, while avoiding as much as possible dissemination of force, submit to the obligation of detaching a part of the army in the peninsula and the islands to serve as a nucleus or reinforcement for the troops of the mobile and territorial militia. This necessity for guarding the peninsula will not be less felt in a case when the Italian army pronounces an offensive movement beyond the frontier, for the kingdom will always have its coasts open to the enterprises of a power superior by sea; and in this it differs from other states whose territory is naturally protected when the army is on the frontier. What confidence would sustain the army in such a case, if it crossed the frontier and left the peninsula in rear defenceless and open to the insults and attacks of an enemy?

"To ensure the defence of our territory in all the hypotheses of war, it is therefore indispensable to give a greater strategic power to our military forces, and consequently to create two new army corps. It is this end that I hope to attain by the Bill now before you, while keeping within the limits of expenditure authorised by our financial situation."

Besides the general results accruing from the new

laws, the scheme entailed the following additions or modifications: Seventeen regiments of infantry of 48 battalions, 2 regiments of cavalry of 12 squadrons, 2 field artillery regiments of 20 batteries, had to be created, while the effective of the company was raised from 200 to 225 men on a war footing.

For these ends the annual contingent was increased from 65,000 to 76,000 men; but in order to remain within the authorised limits of expenditure the peace effectives of companies had to be decreased from 180 to 90 men, while 22,000 men will in future be sent to their homes after two years' service.

The authorities who criticise the laws in a hostile spirit include Generals Ricotti, Milon, and Mezzacappo, three men who have chiefly contributed to the organisation and development of the Italian army.

The objections raised to the scheme are as follows:

(1) That, given the political and economic conditions of Italy, ten army corps are sufficient to safeguard the dignity, honour, and independence of the nation. (General Milon, 1880.)

(2) That the army would be stronger if consolidated, that is to say, of ten army corps with companies of 250 men each, and with artillery and cavalry augmented in proportion. (General Ricotti, May 10th, 1882.)

(3) That the anticipated furlough granted to such a considerable portion of each contingent would be inconvenient, that it would cause the one-year voluntariat to disappear, and with it the *fons et origo* of the military

fund,* and that for some weeks the companies would be reduced to absurd effectives.

(4) That it would be difficult to keep corporals from leaving.

(5) That the reforms would take too long in accomplishment, while it was urgent to complete the military forces on a solid basis.

(6) That too much was attempted with insufficient means.

(7) That it is absurd "to organise an army as if we were the arbiters of historic evolution." (General Mezzacappo, 1882.)

(8) That to gain the desired ends the actual organisation is not only not perfected, but as a matter of expediency is even weakened, in order to gain numerical augmentation. (General Mezzacappo.)

(9) That the effective strength of an army is the result of quantity and of quality, and that if one of these factors is increased to the detriment of the other, the product remains always the same.

(10) Lastly, that the numerical increase will only be obtained in a certain number of years, while the evil results will be immediately appreciated.

There is much force and justice in many of these objections, and yet the laws were passed by a large majority, simply, in the words of General Mezzacappo, because it was the universal opinion "that an army composed of ten army corps was not in accord with the needs of Italy, nor with the high position she has the right and the duty to occupy in the concert of nations."

* The objects of this fund are explained in Chapter V.

The last reforms we shall briefly touch upon are those concerning the modifications in the recruiting system, the natural consequence of the law on organisation. Service was reduced from five to four years with the colours for the cavalry, to two years for the train. Various changes were also introduced in the obligations and service of the men of the second category, while another step was taken in the direction of reconciling social interests with army requirements by rendering admission into the third category more easy of access to, for instance, the eldest son of a father, having no other child over twelve years of age, etc. etc. Again, greater severity was urged in the examination of recruits, so that the number returned as unfit for service after incorporation might be reduced, while fraudulent exemptions might be detected. A number of alterations were equally made in the regulations for re-engagements, with the object of rendering abortive the attempts of usurers to make capital out of the bounties allowed to under-officers on re-engaging. They are included in Arts. 136 to 147 of the law in question. Fresh legislation is promised upon this important question ; bounties and pensions are to be increased, while a number of lucrative civil employments in after life are to be reserved for retired under-officers, all promising a good and assured career for a steady man.

We may look in the future less for a radical change than a gradual consolidation of the existing organisation. When the present twelve army corps are complete in a few details of interior economy, when the strength of

the tactical units in peace time are not less than one-half those required on a war-footing, and lastly, when the army in third line develops a certain amount of efficiency and mobility, then the army of Italy will be organised, as far as men and material are concerned, in fair similitude to that rigid model built up so laboriously by Scharnhorst, Gneisenau, and the school they disciplined to organise success.

It cannot be pretended that the military system of Italy bears comparison with that of its great model in simplicity of detail, nor that the mechanism of interior organisation is altogether perfect in peace, or entirely reliable on mobilisation; yet in spite of a few faults and failings it must with justice be affirmed that the wise activity displayed in the sphere of military reforms has on the whole resulted in a very real success, gratifying to a people who have laboured so well to attain it, and a safeguard to the country against the hostile machinations and thoughtless adventures of open enemies or faithless friends.

CHAPTER III.

RECRUITING AND NUMERICAL STRENGTH.

Population and Area—The Executive Power—Territorialism Unsuited to the Social and Political Situation—Ethnic Conditions—The Five Zones of Recruiting—Advantages and Defects—Medical Statistics—Causes of High Annual Mortality in the Army—The Three Chief Groups of the Army—The Reserve of Officers and Complement Troops—Liability to Service—The Recruiting Commissions—The Military Districts—Probable Suppression of the General Commands in War Time—Cause—Effect of Political Divisions upon the Military System—Distribution of Recruits among the different Arms—The Queen of Battles—Work of a District—Results Obtained and Conclusions Drawn—Incorporation of the First Category—Abnormal Position of the Army between September and April—The Three Categories, Liability to Service—Classes Incorporated September, 1882—The Reserves of the Army—Annual Report of the Inspector-General of Recruiting—Effective Strength of the Army—Statistical Comparison between Italy and other States.

The latest statistics place the population of Italy at about 29,000,000; the monarchy includes 111,600 square miles of territory. The supreme executive power is vested in the king, prefects and sub-prefects regulate the interior administration of the sixty-nine provinces composing the kingdom, while these again

are subdivided, for the greater part, into arrondissements and communes.

With regard to the military question Italy organisers found themselves in this unfortunate position, that, with Germany for their model, the German system of territorialism *à l'outrance* had of necessity to be departed from in the most elementary stages of the organisation of the armed forces of the country. Regional recruiting, admirable in its simplicity for the rapid formation of territorial regiments, was unsuited to the social and political situation of Italy. It was of the first necessity to promote, extend, and confirm the feeling of national union, and it was at once seen that a great step would be taken towards this desirable end if each regiment, each battalion, and each company, became a family composed of the many heterogeneous elements which had to be assimilated before the great aim of all Italian efforts could be accomplished.

Ethnic conditions are all-important, and form the principal and preponderating causes of the great divergence between the various races on Italian soil.

The population of the peninsula is composed of:

(1) Celts, in Piedmont and Lombardy.

(2) Ligurians, in Liguria, and the extreme north of Sardinia, differing little from the Celts in peculiarities of race.

(3) Cimbrians.

(4) Teutons, occupying Venetia, part of Emilia and Tuscany.

(5) Latins and Etruscans, inhabiting central Italy.

(6) Saracens, and other races of Semitic origin in Sardinia, Southern Sicily, and Calabria.

The social and political distractions of past centuries have prevented these races from thoroughly assimilating; in no other European state, the Austro-Hungarian monarchy alone excepted, are ethnic peculiarities more strongly marked and enduring.

Instead, then, of a territorial organisation, pure and simple, five grand zones were formed for recruiting purposes, care being taken that each and all possessed as nearly as possible an equal number of inhabitants, and that these were homogeneous as regards the elements of which they were formed, that is to say, of affinity in race, character, and dialect.

The five zones were as follows:

(*a*) Lower Po and Venetia, corresponding to the Piedmontese element.

(*b*) Upper valleys of the Po and the Adda, or the Lombardo-Venetian element.

(*c*) Tuscany, the Marches, Rome, etc., or the central Italian element.

(*d*) Rome-Naples, including the Neapolitan element.

(*e*) The southern provinces and Sicily, or the Calabro-Sicilian element.

The plan was completed by forming each unit, tactical and administrative, of equal fractions of these five elements. The rivalry of races is therefore sufficiently guarded against; the various portions of the contingents, of by no means equal worth as regards soldier service, lose to a great extent their individuality, while unity and cohesion of regiments are finally and satisfactorily

assured. The disadvantages of the plan have regard solely to mobilisation.

In order to judge with any degree of accuracy of the respective physical worth of each race comprised in the kingdom of Italy, the medical statistics of the country must be carefully examined and compared.

Information based on the results obtained from the examination of fourteen successive annual levies, or the inspection of 2,050,295 recruits, show that an average of 121·3 per thousand are returned as unfit for service for want of sufficient height (1·56 mètres). Sardinia is peculiarly badly situated in this respect, for in the Lanusei district no less than 438 per thousand are, from this one cause alone, returned as unfit to carry arms. The best average is found at Garfagnana and Lucca, where from the same cause only 32 per thousand are returned unfit. Generally speaking it may be said that low stature is peculiar to Sardinia, Calabria, and the Basilicate, with Sicily and the valley of Aosta last of all. A far better growth predominates in Tuscany, Emilia, and Venetia. Ethnic conditions are the best guides to the great divergence between the various districts : thus, of the Cimbrians and Teutons 60 per thousand, of the Latins and Etruscans 70 per thousand, of the Celts 115 per thousand, and of the Saracens, and other races of Semitic origin, 300 per thousand, are of low stature.

Of the conscripts examined, 629,219 were reported as unfit for service from various physical imperfections other than want of stature, the mean total reaching 307 for every thousand inspected. In the valleys of Aosta, Sardrio, and Treviglio, it was as high as 628

per thousand; the districts of Crema, Milan, Monza, Lecco, and other parts of Lombardy following next in order. The region possessing the maximum proportion fit for service is that between Rome and Naples, where the number unfit to serve falls to 141 per thousand.

For insufficient chest measurement, 62 per thousand of the recruits inspected were rejected. This number rose to 165 per thousand in Lombardy, and fell to 13 per thousand in Apulia and the Abruzzi. Generally speaking, Venetia, Tuscany, and Lombardy are most notorious for this defect, and the causes are ascribed to insufficient food and unhealthy dwellings. For scrofulous diseases, 3·5 per thousand were rejected, the southern provinces always supplying the largest numbers. In the case of phthisis and similar diseases the mortality oscillates between 1·42 at Catania and 3·84 at Bologna and Milan, and is therefore more severe in the northern than in the southern provinces; but Italy is far more free from this complaint than her continental neighbours. The annual mortality from typhus, again, 2 per thousand only, compares favourably with the 3·37 per thousand of France. Deaths from malaria vary between 1·51 in the Roman Campagna and ·03 at Catania.

The average annual mortality in Italy is about 29·6 per thousand inhabitants, the country thus occupying a mean position between England (22 per thousand), France (24), and Germany (27·1) on the one hand, and Spain (31·2), European Russia (36·7), Cisleithan Austria (31·3), Hungary (38), Croatia and Slavonia (43·7) on the other.

This comparatively high mortality for a country so generally well circumstanced and favoured by Nature may be ascribed to the fact that the progress of civilisation, the instruction of the people, political economy, public and private hygiene, have not yet sufficiently diffused their beneficial influences throughout the kingdom.

If other reasons are required they will be found in the geographical position and consequent temperature, in the devastations of malaria, and in a very considerable infant mortality.

Turning again to the army, we find the high annual mortality of 16·3 per thousand effectives, comparing badly with the 6·4 of Germany and other European states in similar proportion.

The causes for this must be ascribed:

(1) To the recruiting commissions, where the civilian element preponderates, and the recruits undergo a rather superficial examination.

(2) To the month (January) chosen for the incorporation of the recruits; men from the south, for instance, having to commence unaccustomed and fatiguing duties in the cold northern districts during the very worst period of the year.

(3) Lastly, to the barrack accommodation, already described as very inferior in many cases.

Venereal diseases exercise a less deleterious effect upon the Italian army than on many others, Italy occupying a mean position between the French, Portuguese, Belgian, and English armies on the one side, the German and Austrian on the other.

There are three principal groups in the Italian army:

(*a*) The active army (*ferma permanente*), a portion only being in the ranks, the remainder at home on furlough and filling the ranks on mobilisation.

(*b*) The mobile militia, composed of time-expired men from the active army.

(*c*) The territorial militia, composed of time-expired men from the two former groups, and, in addition, of all those dispensed from service but equally bound to serve their country in time of need.

Lastly, there come the reserve of officers and the complement troops, the latter having no cadres and forming a reserve of men only to fill up the gaps in the active army and mobile militia in war time. The reserve of officers is composed of all grades on pension and retired, obligatorily at the disposal of the Government in case of need; they would probably be employed in war time on territorial services and in the defence of strong places, and, only at their own request, may be drafted into the mobile militia, and take part in active operations.

Every Italian is liable to military service from the first of January of the year in which he reaches the age of twenty. Each year the parochial authorities publish the lists of the young men liable to service in the year in question, the lists being closed in February and forwarded to the prefects. The numerical strength of the first category is annually fixed by Parliament, and all detailed instructions for the guidance of the recruiting

commissions are supplied by the Minister of War. These commissions are composed as follows:

President	.	A prefect or sub-prefect.
Members	.	Two provincial councillors. Two field officers. One Government commissary. One surgeon.

The revision of the lists and the drawing of lots for the first category being accomplished, the various parochial authorities are informed of the distribution of the first category by the Minister of War, and definite steps are immediately taken to check the lists, and hear claims for exemption. The drawing of lots takes place at the end of August and the beginning of September; the powers vested in the recruiting commissions are restricted to the ascertaining of the actual aptitude of men in the levy for military service, to their division, by the drawing of lots, into three categories, and to certain questions of exemptions for social and family reasons, regulated by law. All the men of the first category with proved liability for service are divided and handed over to the military districts at the end of the year, the remainder being dismissed to their homes on furlough.

Before following the further steps taken with regard to the men of this category before they are incorporated, it is necessary to glance at the interior economy of the military districts.

It has been already noticed that changes of late years have increased the number of districts to eighty-

eight; it will further be evident that as the district is the only reliable and constructive machinery on mobilisation, the whole question of success or failure in case of emergency depends in no small degree upon the rapid and harmonious action of these organised centres.

It was early evident to military men in Italy that the ordinary civil divisions of the country would be indifferently suitable in face of the necessities of the union, and that fixed territorial centres of some sort were a *sine quâ non* for the stability and facile manipulation of reserve forces in war time. The creation of military districts resulted therefore from the peculiar conditions of recruiting in Italy, not from the discovery of any novel or unique method of organising the armed forces of the country in case of war.

Although the districts were given but a small staff and inadequate personnel, the duties incumbent upon them before the Mezzacappo reforms of 1877 were heavy indeed. They kept the lists of all men on furlough in their commands; they formed a point of union for recruits and reservists; they administered the Alpine companies, organised detachments of recruits, and, after a short preliminary training, directed and escorted them to their regiments, supplied with clothing and necessaries; they trained the second category during its forty-five days' service, as well as the whole of the one-year volunteers, while lastly they called in, equipped, and instructed the mobile and territorial militia in case of need. Decentralisation had not been carried far enough, for the press of work was more than sufficient to occupy the district staff during peace time; in the event of

mobilisation it seemed only too palpable that the state of affairs might conduce to much confusion, if not to some lamentable breakdown. The reforms of 1877 were timely, and calculated expressly to lessen this strain of work. The districts were relieved from the elementary instruction of the first category, the administration and instruction of the one-year volunteers, the instruction of the second category, the storage and care of material, etc., the administration of the Alpine companies, and the general instruction of reservists.

The men of the first category are now forwarded to their respective corps immediately they are told off to them; the one-year volunteers also join their regiments, and receive their training with them; the Alpine companies have become autonomous bodies; while, lastly, the storage of clothes, equipment, tentage, etc., is completed by the central magazines of each army corps, and forwarded by them to the districts as required.

The district staff numbers from fourteen to eighteen officers, and from nine to twelve under-officers. For the permanent companies the numbers are not absolute, varying considerably with the necessities of the service. The men of these companies are chosen from the first category after they have served from one to two years; those least fitted for active service are generally chosen, except in the case of districts forming the nucleus of the garrison of some important strategical point. On mobilisation it is laid down that any surplus men may be withdrawn from the companies for *étappen* duties.

The superior commandants of districts are the intermediaries between the district commandants and the

Minister of War; they are the permanent inspectors of certain groups of districts placed under their charge; they ensure the uniform direction of the service, and exercise a constant surveillance over stores and material in case a sudden order may arrive for mobilisation. In case of war their duties are not materially different; they are immediately attached to the staff of the general of reserve, who replaces the former general of division on the departure of the latter with the field army.

From various Ministerial utterances we gather that it is intended to suppress the general commands in war time. General Mezzacappo gave the following reasons for this intention: "Were Italy," he said, "to enter the lists with a power equally strong by sea and land, she would be obliged to solidly organise her coast defence. With our general commands, as they are established in peace time, this would not be easy, since those of them bordering on the sea form a zone of territory so narrow that they are unsuitable for the purpose. In order to possess serious centres of resistance it is advisable to group the necessary numbers of neighbouring divisions with particular regard to the length of the coasts. This grouping could be executed without difficulty supposing the division to form the largest territorial unit in case of war."

By increasing the number of districts a great strain has been taken off the various staffs, while both new levies and reserves respond to orders received in a shorter time and with less overcrowding than in the past. On the other hand, there are some evident defects in the scheme. If the transport of men to the district

headquarters is to be effected under good conditions, it must be accomplished without interruption and in full trains. Only a fixed number of trains can be despatched in the twenty-four hours, and if these are only half full the transport of 250,000 men, formerly taking about eight or nine days, may in future take twelve or fourteen. Therefore we may look upon the present number of districts as a maximum, or at all events as a number that cannot be wisely overstepped.

It would be a manifest advantage for the uniformity of work if each district controlled an equal section of territory and population; but other considerations prevent the accomplishment of such desiderata. The territory of the kingdom is divided politically into provinces, arrondissements, and communes, except in Venetia, where it is divided into provinces and administrative districts. The recruiting operations take place by province in Venetia, and by arrondissement in the rest of the kingdom. These operations have such an intimate connection with the working of the districts that the constitution of the latter must of necessity have for its basis the territorial element of recruiting, and neither arrondissement nor province must be divided into two different district-zones. Since, on the other hand, the population is spread over the peninsula with ever-varying density, it results from these two circumstances that the districts are at variable distances apart, according to the numbers of the inhabitants placed under their jurisdiction.

Generally speaking, it may be said that to-day the districts, instead of their former arduous labours, have

merely the duty of calling in and disbanding the various classes. By the character of this work they are trained for the more laborious but very similar duties of mobilisation. The chief considerations to-day are that no minor details shall interfere with their all-important duties in case of war.

The labours of the district commandant, the staff, and the permanent companies, in connection with the arrival and distribution of the men of the first category, are by no means light.

On the arrival of the recruits the first duty of the commandant is to make a general division of the whole between the different arms of the service, in the proportion fixed by the Minister of War; the permanent companies next proceed with the clothing as soon as the regiment, battery, or special corps has been decided for each man, while the operations are terminated by the whole being drafted away under escort from the headquarters of the active corps.

For the Carabinieri Reali, or Gendarmerie, a discretionary choice is allowed to the Commandant of Carabinieri residing in the district, or to an officer of the arm delegated by him. A man chosen for this service must be unmarried, of good character, able to read and write, willing to contract an engagement for eight years, and of 1·66m. minimum height. Recruits chosen for this arm usually learn their duties with the instruction legion at Turin.

For the field artillery 1·64m. is the minimum; for the fortress artillery, 1·70m. A certain amount of useful technical knowledge is also required.

For the cavalry, men are chosen with a height of 1·64m. to 1·72m. for the heavy regiments, and from 1·60m. to 1·68m for the remainder. They must be broad-chested, but not too thick, slender and active, and as far as possible accustomed to the care and management of horses.

To qualify for admission to the engineer regiments men must be from 1·64m. to 1·72m. Those apprenticed to trades of use in this service are given the preference.

For the bersaglieri the height varies between 1·62m. and 1·75m. Great care is taken that the men chosen for these celebrated light infantry corps possess good constitutions, are broad and deep in the chest, quick and active in their step.

No cantons in the plains can now supply recruits for the Alpine companies, which are as far as possible composed of young men familiar with and resident near the localities where the various companies are stationed in summer. A minimum height of 1·56m. is allowed, but the men must be robust, active, and inured to fatigue.

For other special corps recruits are divided as their trades render them useful—thus, for the sanitary corps, chemists, druggists, and hospital *employés* are naturally chosen; for the instruction troops, men of better education and with the tact necessary for command.

If there is a deficit, or the reverse, in the numbers required, the loss or gain is invariably borne by the infantry. "Infantry is the queen of battles," and yet in most European states this maxim is adhered to in theory only, while in practice her majesty only receives

what her less highly-placed sisters are not in need of. Giants to the guards, intelligent men to the engineers, active lads to the cavalry and artillery, robust mountaineers to their own local corps, broad-chested, active marchers to the bersaglieri, *chasseurs-à-pied*, or jägers . . . and the remainder to the infantry of the line. When these conditions are understood the pitiable appearance of certain continental infantry to-day is not to be wondered at. In Italy, however, the state of affairs calls for less critical comment, and the evil results, as far as actual physique is concerned, are less marked than in other states, partly from the absence of territorial bodies of troops, and partly because of the large proportion of men rejected from army service out of the entire annual contingent.

In addition to the steps already shown for making the best use of the individual aptitudes and physical advantages of each man, there is a further gain in *ensemble* to the Italian regiments by the division, equal as far as practicable between all corps, of men able to read and write, of those possessing superior instruction, and also of men apprenticed to various useful trades, armourers, saddlers, bootmakers, tailors, masons, etc. Infantry of the line and bersaglieri are supplied with clothing and necessaries at the districts; the cavalry, artillery, and engineers only receive the most indispensable necessaries, while the recruits told off to the royal carabineers and the stud-farms are given merely a camp covering to serve as a protection against cold.

"L'Esercito Militare" has given a very vivid de-

scription of a district at work, and as so much appears to hinge upon the goodness or badness of the method employed it may be useful to look at the results obtained, noting that the district in question was no model one but a fair representative of the class.

By the end of December all the names of the men composing the levy had been inscribed, by cantons, on the register of distribution to the various arms; another blank register had been prepared for the distribution to special arms, and a third for the distribution to the infantry of the line. The contingents of the various cantons were divided among the permanent companies to be clothed and generally administered by them. The place of assembly had also been prepared in the short interval between the publication of the circular on the calling out of the class and that of the circular on the arrival and sojourn of the men at the district.

On the 21st of the month the escorts sent by the different corps to take over their recruits arrived on the scene, and assisted the permanent companies in the clothing operations. From the 23rd the recruits began to arrive, and up to the 26th were still crowding in. On the 24th the commission was declared open, the sittings lasting from 7.30 to 11.30 a.m., and from 12.30 to 6 p.m. The commandant of the district, president of the commission, had a tabulated form in front of him, divided into as many columns as there were corps requiring a portion of the contingent. At the head of each column was shown the number required, as notified by the Minister of War. At one side of the commandant was seated an officer, who put down on the distribution register the

destination, height, and chest measurement of each man; on the other side was another officer, who wrote down the names of the men apportioned to the various arms of the service. To the right and left were the officers delegated by the corps, assisting the district commandant with their advice, and paying particular attention to the physical aptitudes of the recruits handed over to them. In front, and at another table, a clerk was seated, putting down on a special register the names of those recommended for a more careful inspection, making out and countersigning the engagement for eight years' active service of the men incorporated in the royal carabineers. The premises where business was carried on were composed of a room and an ante-chamber, with a long corridor leading from it. The permanent companies, in the order assigned, échelonned their men in this corridor. The latter were introduced by squads of twenty at a time into the antechamber, where they stripped, and were then formed up in a small column at the door of the commission chamber. The quartermaster of the company stood at the door, calling the names, regulating the entrance and exit, and writing down the destination of every man. The men on entering the room filed under the measure, where an experienced non-commissioned officer took their height, under the supervision of a doctor, who himself took the chest measurement, and called out the two figures together with any special observations about the man.

The district commandant next decided the future regiment of the recruit, which was registered, with the other details, by the officers and the quartermaster.

By these proceedings the men who arrived on the evening of the 23rd or morning of the 24th received their route on the evening of the 24th, and by the evening of the 26th the whole operation was terminated.

The commandant, while the examination and distribution of the men are proceeding, makes a red mark for each man classed in the separate columns. By these means he keeps himself continually informed with respect to the number of men incorporated, or rather told off to the different arms of the service, for he does not actually complete the lists for each separate regiment and battery until the evening. The system employed enables the general order concerning the definite distribution of the recruits to be published on the morning of the 27th, while the routes are simultaneously made out, the different corps advised of the impending departure of their men, and arrangements concluded with the railway officials concerning the departure of the necessary trains.

Experiments recently conducted under all the disadvantageous conditions possible to exemplify in peace time have shown that a district can clothe 125 and arm 600 men in an hour, or on an average prepare 800 men per day; and the conclusion is therefore drawn that six classes of infantry reserves, at 26,000 men per class, can be prepared in about three days, whereas under former conditions eight days at least were required.

It has been objected that there is needless waste of time over signing and checking accounts, etc., while exception has been taken to the employment with the

permanent companies of men unfit for much hard work; but the results obtained are too good and the plan followed too methodical to warrant any suppositions of future confusion in case of emergency.

There is one more point to be noticed with regard to the incorporation of the men of the first category. They arrive at the headquarters of their respective regiments at the beginning of the year, and owing to the difficulties of training during the winter season they are comparatively useless in the ranks by the side of their older comrades for a not inconsiderable period; in sum, they receive but two months' preliminary training, and are then embodied with the remainder of the men with the colours for the annual course of drills and instruction commencing on the 1st April. The eldest class in the ranks is, however, invariably dismissed in September after the autumn drills, and therefore it may be said that for seven months in every year the military position is abnormal and unsatisfactory; all the more dangerous, since wars in Europe have a decided tendency to break out in early spring. Such an event as a mobilisation in March, April, or May would find about one-sixth of the active army of Italy comparatively untrained and unfit for active service. In case of a mobilisation during the winter months matters would be still worse; but the latter period is a very unlikely one, the former a very probable one. There would be little danger for Italy, supposing the annual levies in other European states began their army training under similar conditions, but such is not the case, for in Germany and Austria the

recruits join their respective regiments in October and November, and pass through the transition stages before what may be called the dangerous season, most suitable for campaigning, begins.

Liability to service in the three great groups of the army varies according to the category and the arm to which the soldier belongs. The following are the regulations for the liability to service of the divisions of the first category:

	Active Army.	Mobile Militia.	Territorial Militia.
Infantry, artillery, and engineers	8 years { 3 in the ranks, 5 on furlough }	4 years	7 years.
Cavalry	9 „ (4 in the ranks)	0 „	10 „
Coast companies and train	12 „ (3 „)	0 „	7 „

The second category nominally undergo forty-five days' training, and then form the complement troops, with eight years in the active army, four in the mobile militia, and seven in the territorial militia. The organisation of this category has been a weak point for many years past, and the ill effects of this are not yet eradicated. They were essentially *truppi di complimento*, possessing no cadres, forming no distinct tactical units and with little idea of the meaning of the words duty and discipline. Such men were not fitted to fill the gaps of an army in the field. It was soon perceived that if this practice were continued of giving little training and insight into military life to the men of the second category, forming as they do such a large proportion of the field forces, a very grave

injury would accrue to the active army, the principle of obligatory service would be stultified, and the solidity of the reserves very seriously impaired. The budget of 1879 gave a vote of over three million lire for the purpose of training the second category. At this time, out of the five classes forming the complement troops of the active army, only those of 1853, 1854, and some 20,000 of the class 1857 had received the training laid down by regulation. It was determined to neglect the classes 1855, 1856, and the untrained portion of 1857, or 145,639 men, and to pay attention solely to the class of 1858, numbering 41,600 men in all. Lieutenants and sub-lieutenants of the mobile militia and complement troops were called up to assist in the training.

By the laws of June, 1882, the second category was divided into two portions. The force of the first, specially furnishing the complement troops, is fixed each year by royal decree. The number drawn by the conscript determines the classification in the first or second portions of the contingent; but while the division of the second portion is made by prefects in proportion to the number of men inscribed on the lists of each canton, the division of the first portion is effected by district commandants in proportion to the number of men definitely apportioned to the second category in each canton. This disposition puts an end to the complications arising from the drafting of men from the first to the second categories and *vice versâ* during the levy. Men of the first portion of the second category now pass from two to six months with the

colours; the second portion receive an elementary instruction equal to that given to the men of the third category.

On the arrival of the men with their regiments, they are invariably stationed at headquarters, and never sent out on detachment duties. In the artillery some two-thirds of the whole are told off to the train, only the best men learning their work with the field and garrison batteries. The regimental training for the infantry is pushed forward with all possible despatch, and after a few weeks the recruits mix with the companies already formed. The training consists of elementary gymnastics, of the theories of the duty of a soldier, disciplinary punishments and the penal code, the duties of sentries, the care of arms and equipment, and lastly of drills and field exercises on a small scale, together with an elementary course of musketry instruction.

The third category, consisting of those dispensed from all active service from various reasons, received no training up to the year 1881. In this year 16,000 men of the third category were called up for fifteen days' drill, and the same process was repeated in 1882 with 15,000 more. Men of this category belong to the territorial militia during the whole of their nineteen years' liability.

Lastly, there are separate regulations for the one-year volunteers, for under-officers, royal carabineers, armourers, and musicians, who have all to serve in the active army for eight years, and for the remaining eleven years pass into the territorial militia.

In September, 1882, the following were the actual

classes incorporated in the various groups of the army:

ACTIVE ARMY.

	In the Ranks.	On Furlough.
Infantry, Artillery, and Engineers	3 classes of the 1st category. Classes 1858-59-60.	5 classes of the 1st category. Classes 1853-54-55-56-57.
Cavalry	5 classes of the 1st category. Classes 1856-57-58-59-60	4 classes of the 1st category. Classes 1852-53-54-55.
Coast Companies and Train	3 classes of the 1st category. Classes 1858-59-60.	9 classes of the 1st category. Classes 1849-50-51-52-53-54-55-56-57.

MOBILE MILITIA.

Infantry, Artillery, and Engineers	None	4 classes of the 1st category. Classes 1849-50-51-52.

COMPLEMENT TROOPS.

Complement of the Active Army	None	5 classes of the 2nd category. Classes 1856*-57†-58-59-60.
Complement of the Mobile Militia	None	4 classes of the 2nd category. Classes 1852-53-54-55.

TERRITORIAL MILITIA.

1st category	None	7 classes of all arms. Classes 1843-44-45-46-47-48-49. 7 classes of Cavalry. Classes 1846-47-48-49-50-51-52.
2nd category	None	7 classes, 1846-47-48-49-50-51-52.
3rd category	None	7 classes,‡ 1855-56-57-58-59-60-61.

* Untrained. † Only 20,000 trained.

‡ Untrained, except 31,000 men trained in 1881 and 1882.

The comparative worth of reservists may be calculated:

(*a*) By the individual intelligence and primary education of the recruits.

(*b*) By the amount and character of the training received.

(*c*) By the length of time the men have been in civil employment without military training.

We shall presently show by statistics that primary education, if improving, is still at a very low ebb for the youth of Italy. As regards training, it has been already noticed that Italy allows a shorter time on an average for her peasants to be fashioned into soldiers than any other great military state in Europe, while the training itself suffers from certain unsatisfactory conditions of service.

With regard to the first category, we find that something over five years are spent on furlough from the active army with absolutely no training at all, and that even after this period the same men are calculated upon for four years in the mobile militia, and afterwards for seven years in the territorial militia, with an equal absence of all instruction during the interim.

For the second category, the services of the men composing the levies are reckoned upon in the same manner, but with this distinction—that their whole period of army service consists of only forty to ninety days' training, and that the *contadino* is expected to so benefit himself during the ensuing nineteen years of his life from this short dream of discipline that he

may be able, if required, to take his place in the ranks as a drilled and instructed soldier.

Up to the year 1881 there was no training given to the territorial militia, but the steps then and since taken and some of the clauses of the laws of 1882 give good promise that matters will rapidly improve. So far the condition of things is not altogether satisfactory, and the only answer vouchsafed is the usual pretext about the financial position of the country, or that neighbouring states labour under nearly equal disadvantages with respect to their armies of reserve.

Certain it is that this question of the training of the reserves of the armies in first line is often neglected, if perhaps from sufficiently cogent and plausible reasons.

At the same time it is a certainty that the rapid formation of reserve field and reserve garrison armies will be one of the features of the next great European war, and that public opinion leans on a broken reed when it trusts to the material assistance of reservists, who have spent a number of years in civil employment, and in rapidly forgetting all that has been so laboriously dinned into them during their active service.

It is greatly to be feared that the plausible arguments and comfortable theories of clever manipulators of figures may fall to the ground when confronted by any sudden emergency or pressing need. It is an article of faith as well as law that reserves must only be called out in case of "imminent national danger," or, in other words, when their immediate presence is required in the field. When then will the further instruction they so evidently require be given? In the

heavily-laden railway waggons, while they are being passed to the front, or in the crowded transports?

Reserves are a necessity under modern conditions of warfare, but if a way be not found to effect a compromise between civil employment and the needs of army training, then affairs must be looked at in a practical light, and the utility of their services no longer over-estimated. "Questo è un bisogno," sighs the Italian, "al quale i mezzi finanziari sinora assegnati all'amministrazione della guerra non permettono assolutamente di far fronte."

Turning to the annual reports addressed by General Torre, the Inspector-General of Recruiting, we notice that in September, 1881, 283,507 youths were liable for service, and that out of 272,152 inspected by the recruiting commissions the following were rejected:

For insufficient height, 27,812, or 10·22 per cent.

For insufficient chest measurement, 7,409, or 2·76 per cent.

For infirmities and deformities, 39,854, or 14·65 per cent.

Making a total of 75,075, or 27·59 per cent. in all.

The six provinces giving the greatest number of men rejected proportionately to those taken for service were: Catanzaro, 38·54 per cent.; Sondrio, 37·59 per cent.; Reggio, 35·86 per cent.; Caltanisetta, 35·13 per cent.; Cagliari, 34·51 per cent.; and Udine, 34·22 per cent. Those giving the smallest proportion were: Verona, 13·37 per cent.; Pisa, 18·14 per cent.; Aquila, 18·35 per cent.; Ravenna, 18·86 per cent.; Lucca, 19·17 per cent.; and Arezzo, 19·59 per cent. Of the

men liable to service, 57,497, or 19·99 per cent., were admitted to profit by the various exemptions specified by law, and were classed in the third category. Of the 160,315 men divided between the three categories, 77,494, or 48·34 per cent., could read and write; 4,465, or 2·78 per cent., could read only, while 78,356, or 48·88 per cent., could neither read nor write. There is, however, a small steady gain each year over the results obtained by previous levies. The comparative classification of the various districts as regards primary instruction is subject to little variation. The northern regions, Piedmont, Lombardy, and Venetia, supply the best instructed contingents, while the worst come from Naples and Sicily.

On the 1st April, 1882, the effectives of the army were as follows:

Active Army.		
With the colours	216,596 men	704,207 men.
On furlough: 1st category . . .	270,120 „	
„ 2nd „ . . .	217,491 „	
Mobile Militia.		
1st category	164,656 men	330,767 men.
2nd „	166,111 „	
Territorial Militia.		
1st category	206,611 men	893,998 men.
2nd „	282,664 „	
3rd „	391,466 „	
Various	13,257 „	
Total .		1,923,972 men.

Putting aside for the moment all questions of in-

struction, discipline, and other moral factors of the first order, the relative strength of armies can in some degree be calculated by precise comparisons between figures showing the effectives, the material resources, annual budgets, and so forth. Even a purely statistical study of the constituent elements of an army is not without its lessons. It would be an illusion to pretend to attach an absolute value to these figures or to draw any final conclusions from them, but they are useful by the side of a critical examination of their respective elements. They are put forward as the first data of a problem, indispensable for the solution but insufficient for the determination of it.

Italy, with a population of nearly thirty millions, has taken her place among the six great European states. At the present rate of increase and with existing frontiers it has been calculated from reliable statistics that the population of Italy will in fifty years equal that of Austria, surpass that of France, and maintain its relative standard in comparison with England, Germany, and Russia.

Liability to service almost everywhere commences at the age of twenty. The duration of service is :

15 years in Russia.
19 „ Italy.
20 „ France.
12(25)„ Germany and Austria.

Service of three years with the colours has been recognised as the minimum consistent with the requirements of military apprenticeship.

The following number of reserve classes are incorporated on mobilisation:

Austria	10 classes.
France	9 „
Italy	8 „
Germany	7 „

In this instance nations with the smallest numbers of reserve classes possess a larger proportion of young soldiers, but gain from the system undergoing less friction in the event of war.

The percentage unfit for service of those inspected is as follows: Italy, 27 per cent.; France, 32 per cent.; Russia, 40 per cent.; Germany, 48 per cent.; Austria, 48 per cent.

The wide divergence of these figures is to some extent traceable to respective laws of recruiting.

We have already given the proportion between war budgets and national incomes.

Young soldiers able to read and write on joining are per thousand as follows:

For Germany	965
„ France	635
„ Austria	460
„ Italy	450
„ Russia	115

Calculating for each state the war budget at 1,000, we find expenditure represented as follows:

(*a*) General administration, or central direction:

France	56
Italy	55·9
Germany	50·6
Russia	49·7
Austria	45·5

(*b*) Pay, cost, and maintenance of the troops:

France	758·9
Italy	697·6
Austria	601·5
Germany	575·5
Russia	495·4

(*c*) Material of war:

Russia	316·5
Italy	213·5
Austria	177·2
France	154·2
Germany	149·4

(*d*) Instruction:

Austria	56·2
Russia	28
Germany	27·3
Italy	18·7
France	16·8

(*e*) Pensions and rewards:

Germany	197·3	
Austria	119·6	
Russia	23·4	Chargeable to other departments.
Italy	14·3	
France	14·1	

The organic formations and effectives next require attention.

An infantry regiment of 3 battalions of 4 companies each has been decided upon finally by all the great military states.

The mean effective peace strength of a battalion is:

656 in Russia.
591 „ Germany.
537 „ France.
510 „ Italy.
347 „ Austria.

Cavalry regiments are subdivided into :

7 squadrons (one depôt) in Austria and Italy.
5 ,, in Germany.
5 ,, (one depôt) in Russia and France.

There is a remarkable want of uniformity in the proportions, armament, and denomination of European horsemen. "Tradition," writes Simoneau, "appears to still possess much more influence in the actual organisation of European cavalry than solid reasoning." There seems, however, to be a growing tendency to divide cavalry forces into two great categories only, heavy and light.

Peace effectives of cavalry are as follows :

Russia	65,124
France	59,449
Germany	58,922
Austria	43,624
Italy	21,998

For every 1,000 infantry on a peace footing there are :

313 cavalry soldiers in Austria.
263 ,, ,, Germany.
219 ,, ,, France.
145 ,, ,, Italy.
143 ,, ,, Russia.

Field batteries and effectives are :

For Russia	327	field batteries	with	98,917	effectives
,, France	361	,,	,,	72,461	,,
,, Germany	300	,,	,,	58,428	,,
,, Austria	212	,,	,,	35,047	,,
,, Italy	100	,,	,,	27,244	,,

Total peace effectives are:

State.	Men.	Animals.
Russia	663,359	88,285
France	460,186	99,310
Germany	438,831	96,875
Austria	247,624	46,667
Italy	216,596	33,099

A soldier costs:

In France	1,243 lire.
„ Russia	1,231 „
„ Germany	1,163 „
„ Italy	934 „
„ Austria	900 „

In case of imminent national danger can be put in line per 1,000 of population:

Russia	18·6
Italy	28
France	29·8
Austria	30
Germany	33·4

Italy possesses an officer for every 25 men in the infantry, and for every 22 in the cavalry, a fair mean between the extremes of other states.

For every 1,000 officers, Italy has 17·6 employed on the staff. Compare with Austria, 20·6; Germany, 22·1; France, 23·6.

For every under-officer the number of corporals and privates reaches:

5·40 in Italy.
10 „ Russia.
11·4 „ Germany.
11·44 „ Austria.
21·66 „ France.

Such are the conclusions one may draw from a rapid survey of certain known quantities, but to rest here and leave figures as against figures in unquestioned trust would be waste of time indeed.

We must look more closely and critically into *what is*—discarding for once the orthodox but misleading system of summarising official reports, and attempting to galvanise into a semblance of life the lay figures of bureaucratic reticence—if we would dissect and expose in the light of full publicity the truth or untruth of generally accepted statements.

CHAPTER IV.

THE WAR FORMATIONS OF THE ARMY.

The Commander-in-Chief—The War Ministry—The Headquarter Staff—Territorial Organisation of Army Corps, Divisions, and Districts—Effective Strength of Tactical Units—Reserve Field and Garrison Armies—The Supply of Officers—The Territorial Militia, Organic Formation and Duties—The Communal Militia—The Supply of Small-arms—Small-arm Factories—The Vetterli Rifle compared with the Mauser, Werndl, Berdan, and Martini-Henry—Supply of Ammunition—Long-range Fire in Italy—Equipment of Infantry for Fighting in Italy—System of S. A. A. Supply—Comparison with other States—The Intendant-General—Multitudinous Duties—System of Supply—Contracts—The General Commissariat Direction—Duties—First and Second Line Supply Establishments—Results counted upon—Temporary Supply Service during the First Days of Mobilisation—Requisitions—Transport—The Train Companies—The Civil Train—Traction Engines, Advantages and Defects—The *Etappen* System—The Sanitary Service—Comparison with the German Organisation—Duties of the Engineers—Supply of Entrenching Tools—Telegraphy.

The King is commander-in-chief of the army; his acts, according to the Italian Constitution, must be countersigned by a Minister responsible to Parliament.

The Ministry of War is charged with the command and administration of the land forces, and is assisted in

its duties by the ministerial bureaux, the various committees, and the headquarter staff. The War Ministry forms five separate departments:

(1) The Secretariat-General, supervising the King's household, the movement of troops, the duties of the general staff, judicial affairs, military training and organisation, war preparations, mobilisation, and territorial defence.

(2) The general direction of infantry and cavalry.

(3) The general direction of artillery and engineers.

(4) The general direction of administrative services.

(5) The general direction of recruiting.

Each of these directions includes a certain number of divisions, subdivided into sections.

The Headquarter Staff forms a special department, independent of the above. The functions of the former president of the headquarter staff committee are now performed by a recognised chief of the staff, with the rank of general, having under him a second in command, and another officer of high rank. The conflict formerly existing between the president of the staff committee and the commandant of the headquarter staff has thus been happily terminated by merging the two departments into a single body. The general staff has been established in Rome since 1872, and is divided into two main branches, the military and technical bureaux. The former includes:

(*a*) Intelligence branch and military statistics.

(*b*) Military history and records.

(*c*) The library.

(*d*) Military publications.

The technical bureau has also four special departments: (1) Geodesical, (2) Topographical, (3) Surveying, and (4) Photographic.

The territorial organisation of army corps, divisions, and districts, is as follows:

Army Corps.	Population.	Annual Contingent.	Divisions.	Districts.
I. Turin	1,768,995	6,534	1st, Turin	Turin.
				Pignerol.
			2nd, Novara	Novara.
				Vercelli.
				Ivrea.
II. Alexandria	1,568,192	6,484	3rd, Alexandria	Alexandria.
				Casale.
				Pavia.
			4th, Coni	Coni.
				Mondovi.
III. Milan	2,971,122	10,026	5th, Milan	Milan.
				Varese.
				Monza.
				Como.
				Lodi.
			6th, Brescia	Brescia.
				Bergamo.
				Lecco.
				Cremona.
IV. Plaisenza	1,529,338	5,349	7th, Plaisenza	Plaisenza.
				Voghera.
				Parma.
			8th, Genoa	Genoa.
				Savona.
V. Verona	3,174,272	10,310	9th, Verona	Verona.
				Vicenza.
				Mantua.
			10th, Padua	Padua.
				Venice.
				Rovigo.
				Trevisa.
				Bellune.
				Udine.
Carried forward	11,011,919	38,703		

Army Corps.	Population.	Annual Contingent.	Divisions.	Districts.
Brought frwrd.	11,011,919	38,703		
VI. Bologna	1,763,605	7,685	11th, Bologna	Bologna.
				Modena.
				Reggio.
				Ferrara.
			12th, Ravenna	Ravenna.
				Forli.
VII. Ancona	2,706,767	9,945	13th, Ancona	Ancona.
				Pesaro.
				Macerata.
				Ascoli Piceno
			14th, Chieti	Chieti.
				Foggia.
				Teramo.
				Aquila.
				Campobasso.
VIII. Florence	2,423,894	8,586	15th, Florence	Florence.
				Pistoia.
				Arezzo.
			16th, Leghorn	Leghorn.
				Lucca.
				Sienna.
				Massa.
IX. Rome	2,273,537	8,451	17th, Rome	Rome.
				Frosinone.
			18th, Perugia	Spoletto.
				Orvieto.
			Sardinia	Cagliari.
				Sassari.
X. Naples	2,782,676	9,076	19th, Naples	Naples.
				Nola.
				Caserta.
				Benevento.
				Gaëte.
			20th, Salerno	Salerno.
				Campagna.
				Avellino.
Carried forward	22,962,398	82,446		

Army Corps.	Population.	Annual Contingent.	Divisions.	Districts.
Brought frwrd.	22,962,398	82,446		
XI. Bari	3,055,804	9,733	21st, Bari	Bari.
				Barletta.
				Lecco.
				Taranto.
			22nd, Catanzaro	Potenza.
				Catanzaro.
				Reggio.
				Castrovillari.
				Cosenza.
XII. Palermo	2,934,872	7,664	23rd, Palermo	Palermo.
				Cefalu.
				Trapani.
				Girgenti.
				Caltanisetta.
			24th, Messina	Messina.
				Catania.
				Syracuse.
Totals	28,953,074	99,843		

A division numbers 379 officers, 11,354 men, 1,038 horses, 24 guns, and 171 waggons; an army corps, 1,030 officers, 29,945 men, 5,097 horses, 80 guns, and 793 waggons.

The active army and mobile militia combined number 630,000 men. The actual effectives are as follows:

12 army corps, 371,700 men and 960 guns.

Alpine troops, 35,000 men.

162 mobile militia battalions, 130,000 men and 180 guns,

or 536,700 men and 1,140 guns, supplemented by 320 territorial militia battalions or 256,000 men, making a grand total of 792,000 effectives. An Italian would probably consider this a minimum estimate of actual sabres and bayonets.

We have already noticed that rapidly organised field and garrison armies will be among the unknown quantities of the future. When we compare the supply of trained men in Italy, enumerated in the preceding chapter, with the existing tactical formations, it becomes evident that there are enough men available not only to fill the wide gaps caused by the havoc of modern war, but to render possible, in addition, fresh formations of very considerable power and extent. A future invasion of Italy will be rash if not prepared to eventually cope with a million of well-armed and well-disciplined soldiers.

The numerical strength of an army corps should depend upon the nature and practicability of the theatre of war, upon the character of the warfare, and upon the organic formations, tactics, and armament of the hostile forces. A study of the most probable theatre of operations for the Italian army, namely, the valley of the Po, seems to point to the conclusion that the peculiar characteristics of the district require army corps of an effective strength of about 24,000 men. We may conclude that from one cause and another the Italian corps would not average much above this figure under the severe stress of a campaign, in spite of the rapid influx of complement troops. The Austrian army corps in 1859 varied between 18,000 and 24,000 men; in 1866, they were 24,000 or 25,000. In Bohemia, on the other hand, where the topography of the country and the facilities for communication differ so widely from Venetia and the Lower Po, the numbers rose to 30,000, while the opposing Prussian

corps were of a very similar or perhaps slightly superior effective strength.

Strong battalions of well-armed men, however, can have little real influence save as efficient bands of partisans, unless they possess solidly organised and sufficient cadres.

It is one of the most serious defects of Italian military organisation that the available supply of officers fails to correspond with the numerical strength of the armies in second and third line.

The strictures of Baron Haymerlé on this head are no longer applicable in the case of the active army, for the number of complement officers is more than enough to make good the existing deficit; and this reserve of officers is increasing steadily year by year. In the case of the mobile militia matters wear a different aspect. Officers for this force are drawn from the complement reserve, specially detailed. In 1881, for the ten divisions then existing 3,818 officers were required, but only 1,973 were available. Since that date the cadres of officers have so far grown in strength that about two-thirds of the requisite number are available. It must be remembered that the cadres of the active army are calculated for a strength on mobilisation of 250 men per company; until this number is reached it is therefore always possible to draft a certain proportion of officers to the mobile militia on mobilisation.

It has not yet been found practicable to solidly organise the cadres of the territorial militia or army of third line. The task is a heavy one. Given the

definite *rôle* of the force, it would be a mistake to underrate its actual effective strength. It is beside the question to deny this national reserve great offensive capabilities. Yet an inquiry into the worth of the cadres and the nature of the organisation of the landstürm of a state is eminently necessary in attempting to calculate the practical character, or the reverse, of a territorial defence to the bitter end, of the war to the knife so often fatal to disciplined legions, for without a certain nucleus of well-organised troops a guerilla waged by patriotic bands in the interior, not acting in unison, must soon be reduced by the sheer dead weight of the invading armies of to-day to little more than a disreputable brigandage.

Leaving out of consideration for the moment all question of the territorial militia in its entirety, we must pay some attention to the 320 battalions definitely organised as tactical units and capable of active service.

Some 8,500 officers are required for these battalions, and it is manifestly beyond the power of the country for the present to accredit this force with officers of the status of those in the other groups of the army.

For some years to come legislative changes can only so far improve matters that a nucleus of officers may be formed, but inadequate in point of numbers and comparatively speaking of rather inferior worth.

The necessary conditions to be fulfilled by a man desiring to become an officer in the territorial militia

are set forth in the first article of a law on this subject passed in May, 1880. They are as follows:

(1) To be a citizen of the state, a political elector, and in full possession of all his civil rights.

(2) To be of good character.

(3) To have satisfied all the obligations of the recruiting laws.

(4) To be under fifty-five years of age.

(5) To be of a minimum height of 1·56m., and in good bodily health.

(6) To possess a certain degree of education.

(7) To be in a position to do honour to his grade.

War only can prove whether men who have acquired the coveted grade under such conditions will turn out useful servants of the state. The utility of these regulations depends entirely upon the spirit in which they are carried out, and as they appear capable of a rather elastic interpretation we are brought back to the consideration of the cause and practical utility of the ponderous forces of this unwieldy reserve.

The effectives of the territorial militia amount in round numbers to about a million of men, deducting absentees and making all due allowances for the average annual losses. The primary reason for the formation of the force was the necessity for replacing by some regular organisation the 220 battalions of national guards, established by the laws of 1859 and 1861, but proved to be valueless by subsequent events.

The *rôle* of the force is essentially that of militia; to occupy important points in the interior, to garrison fortresses, to guard the lines of communication as well as the coast, and lastly to preserve order in the interior while the active army is at the front.

The basis of the organic formations of companies and battalions consists of the cantons (*mandamenti*) for the former and the arrondissements (*circondari*) for the latter. The laws defining these organic bases, as well as the general *rôle* of the force, were passed in June, 1876.

The various classes incorporated have widely differing value as far as regards training and military knowledge. Article 8 of the law shows that this fact has been taken into consideration, for it is herein laid down that every man who, on examination, is found to be unacquainted with the correct handling of his rifle and the most elementary principles of drill is rendered liable to be called up for thirty days' training—a very fair and equitable provision, and especially applicable to and aimed at the men of the third category, possessing no training, and, in the spirit of Article 8, evidently supposed to take steps to acquaint themselves in their own homes with certain elementary details of drill, etc.

On mobilisation the territorial militia receives arms, ammunition, and special badges, but no steps have yet been taken to supply the force with uniform. This may lead to many unfortunate results in case of war and invasion, for a hostile army, harassed and disturbed by roving bands who in self-defence might often cast away their badges and hide their arms when hard

pressed, would in a short time lose all respect for civilian dress and regard each man as an open enemy. Such a state of things is well calculated to create dangerous international questions of great moment.

Italian statistics place the territorial militia at over a million and a half of men, as follows:

7 classes of the		1st category,	or	450,000 men.
10	„	2nd	„	350,000 „
19	„	3rd	„	875,000 „
		Total		1,680,000 men.

For annual losses it is supposed that 400,000 will have to be deducted from this total, and an additional 300,000 for absentees, etc., reducing the effective total to 980,000 men. In this calculation it must be noticed that the second category will not attain its full dimensions till September, 1885, and the third category in September, 1894. With the gradual increase of population during this period, the annual levy will be correspondingly added to; this has been foreseen by the laws of 1882. It is sufficiently evident that the presence in any country at all distressed or unsettled of a large number of partially trained soldier peasants not liable, practically, to be called out except in case of national danger, constitutes a double danger. It is a vice of organisation for the armed forces and a grave local danger in case of interior disturbances or agitations. These were the reasons put forward for the formation of the communal militia in Italy, not a separate and distinct body, but liable to be formed with all individuals on furlough, whether belonging to the active

army, the mobile or territorial militia, according to the exigencies of events.

It is essentially a peace, or political force, and there were two pressing reasons for its formation. First, the public safety in many provinces of the kingdom requires at times a larger body of men to represent the majesty of the law than the royal carabineers can supply; while secondly, the mobilisation scheme leaves almost unprotected the whole of the peninsula, save where troops are actually concentrated, and therefore, excluding all question of exterior aggression, a larger number of men will be required for guarding the prisons, public chests, Government stores, and for giving assistance to the carabinieri. These duties could not be performed with any certainty and security unless the communal authorities possessed the necessary hold over the men on furlough within their jurisdiction.

A vast increase in the national forces has necessitated a corresponding addition to the supply of small arms in the country. In 1875, when the fabrication of the Vetterli rifle had barely commenced, Italy possessed some 617,000 obsolete weapons of the Carcano type, 180,000 Vetterlis, and 2,000 Remingtons. During the ensuing four years the manufacture of the old-fashioned types ceased, and the workshops at Turin, Terni, Brescia, and Torre Annunziata were occupied in the rapid construction of the new weapon only. An additional 260,000 of these, or, on an average, 65,000 a year, were completed in 1879, making an available total of 440,000 rifles, sufficient at that date for the active army in first line.

In the same year General Mazè della Roche, Minister of War, obtained a credit of 89,770,000 lire, principally for the manufacture of arms, ammunition, and material of war. The work was steadily continued, and, at the end of last year, 220,000 rifles were completed for the mobile militia, while the converted Carcano rifles, 560,000 in all, were handed over to the mobile battalions of the territorial militia, hitherto armed with muzzle-loading weapons of a very inferior type.

Of the four existing small-arm manufactories in Italy the one established at Terni in 1875, on the Valnerina road near San Paolo, Rome, is by far the most important. It is capable under ordinary circumstances of turning out 60,000 rifles a year, but in case of emergency this number can be increased to 120,000. The motive power for the machinery is equal to 2,000 horse-power.

A comparison of the Vetterli rifle with some other small arms in use in Europe shows that the Italian weapon may fairly lay claim to equality with the majority in most essentials.

State.	Arm.	Weight.	Grooves.	Calibre.	Weight of Cartridge.	Initial Velocity.	Shots per min.
Germany	Mauser, 1871 .	4·4 k.	4	11 mill.	36 gr.	446 m.	15
Austria .	Werndl, 1867 .	4·5 „	6	11 „	32·4 „	436 „	15
Russia .	Berdan, No. 2, 1871 . . .	3·8 „	6	$10\frac{2}{3}$ „	42·5 „	442 „	13
England	M.-Henry, 1871	4 „	7	11·4 „	48 „	410 „	12
Italy .	Vetterli, 1870 .	4·2 „	4	10·5 „	35 „	425 „	12

The calibre is smaller, and the cartridge of less weight in the Italian arm than in any other. Later improvements have increased the sighting and maximum effective range up to 1,500 mètres.

A reserve of arms is a necessity for Italy; the fact has been faced by Parliament, and the number fixed at 330,000, but the manufacture has been postponed from motives of economy.

For the supply of small-arm ammunition the Budget Commission in 1880 admitted 220 rounds per rifle to be necessary, but rejected the 328 per rifle proposed by the Minister of War. At present 142,500,000 are available.

The latest tactical developments of modern war require that great attention should be paid to the supply of small-arm ammunition in the field. In a country composed in great part of hills, valleys, and lowlands enclosed with tall vineyards and heavy crops, the question of long-range fire becomes a matter of comparatively less importance than on the undulating battlefields of Central Europe; the ranges are more restricted, and there is far greater difficulty in regulating the supply of ammunition from the reserve parks and magazines in rear. To act successfully in Italy, infantry must be lightly equipped, burdened with nothing but rations for the number of days the particular operations are presumed to require; on the other hand, the supply of ammunition, either carried on the soldier or in his immediate proximity, must be very considerably increased, for the ammunition reserves in third line are

not always to be depended on in a large army when there is a scarcity of passable roads for wheel transport, and a difficulty in the general command of the troops.

In Italy the engineer parks form the first section of the baggage train of an army corps, and although this is evidently intended to meet the suggested requirements it still fails to obviate the difficulty. If the army corps was marching on a single road—and this would often be the case in Italy—there would be a distance between the head of the advanced guard of the corps and that of the first section of the baggage train of about twenty-eight or thirty kilomètres; even supposing the army corps to be marching in three columns the distance would be certainly not less than fourteen kilomètres. In an enclosed country, and under actual conditions of warfare, when troops are constantly changing direction during an action, a well-regulated system of signals or orderlies becomes an exceedingly difficult matter, and under no circumstances thoroughly reliable. Under favourable conditions the order for the advance of the small-arm reserve, and the time this would take reaching the troops at front, could scarcely be accomplished under six to ten hours for the two distances given. Again, in the actual supply of ammunition the Italian soldier is badly off. On the individual man, certainly, a larger number (88) of rounds are carried than in any other continental army, but there are no other means available to ensure with certainty any reserve once this supply is at an end.

In the nominal army corps supply Italy is second with 181 cartridges per man, among European states, but these numbers merely show what may be forthcoming at the end of the action, not what will be available on the field of battle. There is no supply in the company baggage waggons as in Germany, none in the company ammunition waggons as in Russia, neither are there battalion ammunition waggons as in England, France, Austria, and Germany. There are merely the rounds in the soldiers' possession, supplemented by a reserve in the divisional park waggons, already pointed out as not being available under ordinary conditions.

During the campaign of 1877–78 the 140th Russian Regiment expended ninety-four cartridges per man at the action of Kara-Hassan-Koi, while a battalion of the 13th Regiment, at the Schipka Pass, fired 122 rounds per rifle during a single engagement. With these precedents to go upon we may gather that the proportion allowed in other countries besides Italy is inadequate.

The following table shows the system of supply followed by the chief states of Europe:

States.	Carried on the Soldier.	Company Carts.		Battalion Ammunition Waggon.	Divisional Park Waggons.	Ammunition Column Waggons.	Total.	Army Corps Train.	Total for Army Corps.	Army Train.	General Total for an Army.
		Baggage.	Ammunition.								
France . .	78	—	—	18·10	46·40	—	142·50	31·50	174	?	?
Austria . .	70	—	—	52·50	22·50	—	145·50	—	145	6	151
Germany .	80	11·52	—	19·20	—	15	114·20	56·52	170·72	12	182·72
Russia . .	120	—	45	—	—	45	210	—	210	13	223
England .	70	—	—	30	36·60	—	136·60	36·60	173·20	?	?
Italy . .	88	—	—	—	43	—	131	30	181	16·67	197·67

Turning to the accessory services of the army in the field we find that the regulations for the intendance, transport, and *étappen* services are complex and intricate to a degree, and seem throughout to lack simplicity and require decentralisation.

Commissariat and *étappen* duties have been laid down on German lines, and after the German pattern, with due regard for the special needs of Italian organisation, but want of practical experience on a large scale has had its influence in denying to Italy the same measure of success achieved in Germany.

During peace time the commissariat general direction is responsible for the working of all administrative services. Under it the commissariat directions in each of the military districts provide for local administration and command. While the conduct of all operations on mobilisation, and the measures of execution resulting therefrom, form the duties of the headquarter staff, the intendant-general has exclusive charge of the vast and all-important mechanism of the administrative services. In the hands of a single man the control of ten distinct services is practically centralised; it would be no great exaggeration to say that in Italy the intendant-general commands an army in the field, for on his administrative capacity and power for work depend the strength and material well-being of the forces employed. He is no purely administrative functionary, however, but a general officer on the active list. In his staff are representatives of the following services, each and all taking orders directly from him:

(1) The commissariat direction, regulating all questions of subsistence, treasure, and clothing.

(2) The transport direction, in charge of the entire transport by road, rail, and canal, within the zone of active operations.

(3) The sanitary direction, with supreme control of the sanitary and hospital services of the army.

(4) The telegraph service, under civilian directors.

(5) The postal service, also under civil command.

(6) The *étappen* service, with its many and various duties on the lines of communication.

(7) The veterinary department.

(8) The royal carabineers, unless brigaded with regular troops.

(9) The artillery parks.

(10) The engineer parks.

The intendant-general is the adlatus of the commander-in-chief, and unless these two chiefs work in harmony the whole system of command in war time will be jeopardised. The intention is to lighten the work of the commander-in-chief and his staff by freeing them from the detailed administration of the accessory services and lines of supply, thus allowing them to concentrate all their energy upon measures of action; but the result appears to be that the intendant-general is overburdened with multitudinous duties.

The latter chief is not only permanently attached to the staff of the commander-in-chief, he is also in direct communication with the Minister of War.

The general direction and approximate formations

of the army establishments in second line are ordered by the commander-in-chief, the intendant-general keeping the Ministry informed of the requirements of the army in material drawn from the bases of supply. He receives general instructions from the commander-in-chief, and himself directs the various administrative services through the heads of departments attached to his staff, or the army intendants in case there is more than one army in the field. Each army intendant supervises his several army corps, assisted by a staff of twenty-three officers, heads of departments.

On mobilisation, the intendant-general establishes a system of provision parks, field bakeries, and fresh meat columns, the commissariat carrying out the duties of supply. The troops receive their supplies:

(*a*) From the divisional trains.

(*b*) From the field magazines at army corps headquarters.

(*c*) From the army headquarters reserve magazines.

The regulations are laid down to ensure three days' rations complete, either carried on the soldier or in the reserve magazines in first line, and in addition four days' supply of biscuits, coffee, sugar, and salt. The supplies are drawn and the magazines replenished daily.

During the grand manœuvres there has been no satisfactory practice for these important duties, the supplies being altogether furnished by contractors and the commissariat being well aware beforehand of the localities of the ensuing operations. On mobilisation, when every available horse and mule will be requisitioned for the armies in the field, there will be no such certainty of contracts

being satisfactorily performed unless they are limited to the replenishing of magazines. "The contract system," writes St. Cyr, "is a source of public scandals and of sufferings for armies. The interests of the contractors consist, essentially, in the service not working, or working badly."

The iron ration consists of 800 grs. of biscuit and 440 grs. of meat, or two days' supplies carried with the soldier for emergencies. The battalion carts carry one day's provision and forage. Stringent regulations ensure an unceasing supply to maintain this proportion under ordinary circumstances.

On mobilisation, commissariat directions are formed for each larger unit, under the general commissariat direction at headquarters, itself under the general intendance direction. The commandant of the general commissariat direction provides for the collection, storage, and distribution of all supplies for the magazines in second line; under him the finance, accountant, and commissariat officers regulate their special services. The colonel in charge of the army commissariat direction is also under the intendant-general, under whose authority he provides for the commissariat services in second line, and also for the daily supplying of the magazines in first line. His staff is considerable, consisting of fifty-six officers.

The army corps commissariat directions are responsible for the distribution of supplies and the replenishing with provisions and forage of the first line magazines. They take orders directly from the general officer commanding the army corps. Similar regulations are applicable to each division.

During peace time supplies are drawn chiefly from the great magazines at Turin, Florence, and Naples. There are also thirty-seven provision depôts in the chief garrison towns, for the manufacture and supply of bread and biscuit.

The supply system established by the intendance includes:

(1) Army corps supply columns, in three sections, one for each division and one for the non-divisional troops. The sections are formed by commissariat officers and men and a detachment of the artillery train. Each section carries one ration of meat and superintends a live stock column, or two days' supply.

(2) Field bakery sections, one for each army corps. A section includes fourteen ovens—seven at the central depôt and seven sections with civil transport.

(3) Bread train supply columns, one for each army corps, carrying one day's bread ration for the corps, and superintended by a section of the artillery train.

(4) Army corps reserve supply columns, each consisting of fifty-six battalion two-horsed carts, with four days' rations of salt, coffee, and sugar, two days' biscuit, and one day's oats for the corps. Cavalry division reserve columns are formed in a similar manner.

The whole of the first line columns take orders directly from the general officers commanding army corps. The supplies are obtained by purchase or requisition.

The second line establishments include army advanced magazines and central or intermediate depôts, and are under the intendant directions. Their supplies

are obtained mainly by contract. The army advanced magazines are established at points indicated by the commander-in-chief to the intendance during the course of the war.

The army reserve supply park consists of 150 two-horsed country carts, with civil train drivers, the mobile militia keeping order and conducting the detachment. It carries three days' rations of biscuit and salt, one day's preserved meat, two coffee or sugar, and one day's oats for the army.

The central depôts include general stores, and furnish six days' biscuit, four days' meat, five coffee, and nine oats for the whole of the forces.

The Italian administrators count on obtaining by the methods above enumerated twelve to thirteen days' supplies for the entire force, supplemented in case of need by an additional four days' supply by means of purchase or requisition at the front.

The mobile militia has no military basis for its supply services, with the exception of the personnel of twelve subsistence companies, and relies exclusively on the civil train. The territorial militia has no organised supply formations.

It will be seen in considering the scheme for mobilisation that a mass of infantry arrives at the point of concentration thirty-six to forty-eight hours after the order to mobilise is sent out. To meet the requirements of this abnormal situation four days' supply of flour, bacon, salt, coffee, and sugar are served out before the troops entrain, for consumption after arrival only; during the journey rations are served

out at supply stations. On arrival, a special supply service, organised with spare materials in the zone of concentration, issues bread and meat for the first four days. After this it is calculated that full rations will be issued daily. The special supply service provides forage in the same way for the cavalry and artillery until the concentration has been so far completed that the regular service can be set in motion. It has been established because the needs of large bodies of infantry rapidly concentrated cannot be sufficiently supplied by regular methods in such a limited period of time. It is a makeshift, and as it has an existence of only a few days and is hastily organised as a supplementary train for passing requirements, it may be expected that its action will be at the best imperfect.

The supply sections are completed by contract, purchase, or requisition. If all these means fail or are insufficient, recourse is had to the various reserve parks above mentioned, the reserve or iron rations being only touched at the last extremity by express orders of corps commandants.

The regulations only admit of requisitions for small parties and in case of emergency. The reason for this is to be found in the special methods of Italian national defence. It is generally calculated that the first actions and the most important will be fought, be the enemy whom he may, on the frontier line or close upon it. Again, the system of the defence is *defensive*, and if the admittedly extravagant methods of requisition are generally indulged in, the districts in the zone of operations will soon become impoverished, or be chary of exhibiting

their supplies and of parting with them for the doubtful blessing of an illegible scrap of paper, hastily signed, giving no immediate return, and perhaps to be dishonoured at some very distant date.

In some countries it has been attempted to meet this difficulty by making fixed money payments and forced requisitions go together. But the benefits of such contrivances are more apparent than real. It comes simply to this: if the prices paid are good forced requisitions are unnecessary, for patriotism seldom prevents even a hostile rural population from reaping a rich harvest if they can dispose of their supplies at a good profit to themselves. If the prices paid are insufficient the stores will be allowed to rot in concealment. Regular methods of fair trade must always be infinitely preferable to all devices savouring of dragooning.

There is no regular transport service in the Italian army. The functions of transport are performed:

(*a*) By regimental organisation.

(*b*) By artillery transport.

(*c*) By engineer transport.

(*d*) By the civil train.

The command of the whole is vested in the general transport direction under the control of the intendant-general, but acting independently in all minor administrative details.

For the transport services of the army there are thirty-six train companies in all, six belonging to the engineer regiments, thirty to the artillery.

The engineer companies horse the engineer park, the bridge train, telegraph columns, and other equipment

waggons. Those of the artillery form the regimental train brigades: they not only horse the artillery train, but are detached when required for general purposes and form the cadres of the army train which has to be embodied when mobilisation takes place; in addition, the whole of the pioneer, engineer, artillery provision, and other local transport in the strong places of the kingdom have to be horsed by them. But this is not all: for every three train companies of each artillery regiment one is taken solely to horse the ammunition columns, and there remain therefore only twenty companies for all the onerous duties mentioned above. Again, there is a certain want of system about the whole service, there being no strict distinction between the fighting, baggage, and provision trains.

Generally speaking the train companies may be regarded as the nucleus, round which the military train in first line will be formed, while the supply of magazines will be attended to by the civil train in second line.

The material for the heavy columns is stored at Verona, Mantua, Bologna, and Plaisenza, and is subject to the supervision of the commandants of military districts at these centres.

The civil train is organised in peace time by the commissariat directions. Each direction is given a fixed establishment of carts and horses which are inscribed and periodically visited in time of peace. When called up on mobilisation they are bought at a prearranged price if the carts are in order and the horses sound. Drivers and superintendents are also engaged at a special rate and under a special code

for the duration of the war. Other provisions ensure the further development of the civil train and the creation of similar organisations in the enemy's country if the course of operations necessitates any such action. If these formations are required in first line the commanders of army corps organise the trains; if in rear of the army, the administrative services.

Traction engines for all kinds of heavy transport in rear of the army have been definitely adopted and extensively used in Italy. The possibility of any extensive application of these machines to military purposes was at first received with general incredulity by public opinion. If this sentiment, only natural under the circumstances, has not been entirely overcome it has at all events been modified by the skilful management of the traction forces brought into play. It is now no longer a question of whether or no this latest application of the industrial arts to military purposes shall or shall not be admitted, but rather what is the prudent extension that may be given to a recognised system.

The absence of many good, firm, metalled roads, and the scarcity of horses, require a corresponding diminution in the length of the convoys and an economical substitute for horse power. It is calculated that by making use of these engines there is a direct economy of one-half the cost of ordinary transport, while there is an additional saving of time and a reduction in the number of assistants.

The traction engines are destined to replace the auxiliary train, to draw the field hospitals, the supply and reserve parks, field ovens, etc. They are of English

manufacture, and are from 6 to 12 h.-p., with a speed of from 4 to 6 kilos. an hour. They are designed specially to burn wood. The smaller engine is capable of drawing from 8 to 10 regulation 4-horsed waggons. The length occupied by these would be about one-third the length supposing horses to be employed. A single engine is capable of turning on the arc of a circle with a radius of 3 mètres; a convoy of 8 waggons, occupying about 40 mètres of roadway, can turn at right angles if the track is 8 mètres broad. A maximum daily journey of 60 kilos. in the twenty-four hours has been obtained from the best of these machines, but the numerous and inevitable delays on service will prevent the daily journey exceeding 40 kilos. Recent improvements have aimed in particular at increasing the speed, in order to effect economies in money, time, and space—three very important factors in war. Useful as these engines certainly are, it may be doubted whether their technical and peace advantages compensate for their inherent tactical defects. Although they possess slow mechanical contrivances for ascending and descending steep gradients, they are practically useless in hilly country; they require a great certainty in the communications, while from their weight they are incapable of action except on the best-laid roads. Reliance placed in them, except for transport in second line, would prove misjudged.

The regulations for *étappen* duties are unsatisfactory. Perhaps it should be said that they cannot well be otherwise, given the extraordinary powers vested in the intendant-general.

They admit that each army will have, if possible, a special *étappen* line from the headquarters of the army to its central depôt, probably established in some fortress in rear, and with *étappen* stations 200 kilos. apart on a railway line, 25 on an ordinary road.

The *Revue Militaire de l'Étranger* has well pointed out how this system of *étappen* command has grasped at the letter of the German regulations, but failed to catch their spirit. The Germans give the direction of this service to an inspector-general of *étappen* and railways, having under his orders the *étappen* inspectors of each army, the chief of the railway services, the intendant-general, and the chief medical and post-office officials. In Italy the whole of the complex administrative services are united under the supreme control of the intendant-general, and for this reason the *étappen* services form part of his duties, through the medium of the general direction of transports with the inspectors of railways and the directors of telegraphs and posts comprised in the intendant-general's staff.

The *étappen* line of each army will therefore be directed and administered by the intendant-general, who, in addition to the numerous personnel already attached to his staff, must have a certain number of officers and *employés* at his disposal, in order to create at the last moment *étappen* commands. Judging by the existing statutes, the number of the latter will depend on the degree of difficulty encountered by the army in its relations with the base of operations.

The many duties of the intendant-general render his continual presence with the headquarter staff necessary, and for this reason the very mainspring of the machinery is continually liable to the chances that every less responsible combatant officer runs; his attention, and that of his subordinates, cannot fail to be distracted from the heavy *étappen* and transport duties in rear of the army, if indeed the chances of war do not relieve them from all further anxiety. In the German *étappen* system an accident to the extremity only indirectly affects the heart, in Italy the reverse is the case.

The sanitary service is another accessory direction which does not bear inspection. On mobilisation the two territorial directions of each army corps assist in organising three sanitary or ambulance sections and three field or temporary hospitals for the army corps, and for the mobile militia divisions included in their jurisdiction one field hospital, one sanitary and two ambulance sections. The surplus personnel remaining in the territorial sanitary directions after the above formations is employed exclusively in the evacuation or *étappen* hospitals. The mobile portion, therefore, of the sanitary service includes three échelons, corresponding designedly to the three sanitary échelons of the German service, which are, in first line, the sanitary detachments; in second line, the field lazarets; and lastly, the service charged with the evacuation of the sick and wounded between the second line formations and the establishments in the interior. The

Revue Militaire de l'Étranger, criticising the apparent resemblance but real dissimilarity between the respective services, shows that the methods for the formation of the different échelons are quite distinct, especially as to the quantity and quality of each. If the formations of the second line in particular are noticed, it will be seen that the sanitary service of the Italian army corps possesses, as a second échelon, three field hospitals only, or in other words, arrangements for the charge, in rear of operations, of a minimum of 600 sick and wounded; while the sanitary service of the German army corps has in its second échelon no less than twelve field lazarets, or enough for the care of 2,000 sick and wounded men.

It is no doubt true that, with the present organisation of the second échelon in Italy, the field hospitals will be able to relieve the sanitary sections after a battle, the latter then becoming free and ready for action the ensuing day; but once the field hospitals have been filled, the sanitary section becomes the sole resource of the army corps, and a very small amount of fighting will deprive it of its last means of action. This is precisely the eventuality against which the German army corps is guaranteed, thanks to the twelve field lazarets it includes in its service; for these, taking active measures as there is need for them, ensure under all circumstances those inestimable advantages to the sick and wounded, a regular and almost immediate first dressing and attendance, the troops engaged never being deprived of their sanitary detachments. Generally

speaking, then, the second échelon of the sanitary field service of the respective services is organised in a very similar manner, with one important reservation, that the Italian army corps only appears to possess means for operations of very short duration, while the sanitary service in the German army is capable of acting almost indefinitely.

The third échelon, whose duties consist in forming a connecting link between the formations of the second line and the establishments in the interior, is too imaginary a force in Italy to require peculiar attention or remark. It exists in principle only, and the scanty elements destined to represent it consist of a purely hypothetical surplus personnel. In the German organisation, on the other hand, there is a very different state of things. The mobilisation plans of the sanitary corps include for each army corps an *étappen* surgeon-general; one or more directors of groups of lazarets; a numerous reserve personnel; evacuation and *étappen* hospitals and sanitary trains. On the whole, while the Italian system is well planned, it is inadequate in its present development.

The *rôle* of the engineer regiments in war consists in the construction and repair of roads, railways, telegraphs, and bridges within the zone of operations, and of field works and entrenchments on the field of battle; they work the telegraph in first line, and are responsible for the execution of works of attack and defence of fortresses, and for the conduct of all material; lastly, the railways in the theatre of operations of the active

army, as well as the traction-engine columns in rear, are under their control. For the *étappen* and other lines in rear of the army, civil administration is only so far interfered with that the directors of military transport concert with the company superintendents the march table of the trains, and are responsible for the preservation of order and the supply of food and necessaries at the various stations.

There are three engineer parks—for the army, the army corps, and the company. The army parks form the general reserve of the field forces, and supply tools and material to the army corps parks, to the company and railway parks, and to the infantry and cavalry pioneers. As regards their own supplies, they replenish them according to circumstances from the interior or *étappen* magazines.

The army corps parks form the immediate corps reserve; they transport the engineer tools, equipment, and material, distributing them as there is need, to the infantry for the construction of field works, or to special troops for the execution of more extensive schemes in combination with the sapper companies. The sappers themselves carry no tools, so that the waggons of the company parks practically supply the only means for the execution of works entrusted to them. The infantry and cavalry regiments have a reserve of tools in their own waggons, and are presumed to be capable of executing all local and minor pioneer duties without assistance from the engineers. It is instructive to glance at the actual

resources of this nature in the possession of an army corps:

Corps.		Spades.	Picks.	Axes.
Infantry regiment	With the regiment	36	12	12
	In reserve	36	36	36
Bersaglieri	With the regiment	48	16	16
	In reserve	46	46	46
Cavalry	With the regiment	24	—	24
	In reserve	38	38	38
Battery of Artillery		20	28	16
Army Corps (8 regiments of Infantry, 1 regiment of Bersaglieri, 2 regiments of Cavalry, and 10 Batteries)		994	802	730
Two Engineer company parks		124	220	96
Army corps Engineer park		817	402	168
Total for the Army Corps		1,935	1,424	994

The carriages of the army corps engineer park, destined for the transport of sapper tools, are seven in number, 4-wheeled, 4-horsed, and weighing 970 kilogs. In addition to topographical instruments, sand-bags, etc., they carry:

	Spades.	Picks.	Hatchets.	Axes.	Bills.	Scythes.
Two Waggons, No. 1, each	51	31	10	6	18	10
Three „ „ 2, „	221	95	10	8	10	10
One Waggon „ 3	21	20	20	20	—	—
„ „ „ 4	21	20	20	20	—	—
Total	817	402	90	78	75	50

In considering the number of tools available on the field of battle it must be remembered that those belonging to the infantry and cavalry will be required to a large extent for camp duties, pioneer, and other hasty

works of various kinds, while one-third of the reserve tools are carried by the reserve ration waggons, and can rarely be depended upon with any degree of certainty, so that large deductions must be made from the general total to find the real and available supply.

The sapper brigade possesses sufficient means for immediate action in its own company parks; the army corps park can distribute its tools to one and a half battalions; lastly, with the regimental resources, from one to two battalions can be prepared for working duties; therefore in a single army corps of nine regiments of infantry only sufficient means can be depended upon to organise from two and a half to three and a half battalions for working parties.

The telegraphic service is undertaken by the engineers within the actual zone of operations only; in each army corps by the engineer brigade attached, and in each army by a column of telegraphic material, escorted by special engineer detachments. Telegraphy has not yet been made a speciality in Italy, as modern exigencies seem to require; no particular companies are charged with the service, they may all be called upon when occasion demands; the columns of telegraphic material possess only the strictly necessary personnel for the conduct of their waggons. Again, there are no mounted telegraphists, and if the wires are broken the cavalry has not the means for repairing them.

In sum, we allow that an Italian army, mobilised and concentrated, would possess solid cadres, well-drilled and devoted soldiers; but, on the other hand,

we cannot shut our eyes to the fact that simplicity of detail in organisation, completeness in each particular service, and thoroughness in the inner routine of departmental labour, are capable of reaching a higher standard of perfection than they have attained to-day.

CHAPTER V.

THE THREE ARMS.

The General Direction of Infantry and Cavalry—The Infantry and Cavalry Committee—The Infantry Regiment—The Bersaglieri Regiment—Dress and Equipment of the Infantry—The *Carabinieri Reali*—The Cavalry Regiment—Inferiority of the Cavalry—Dress and Equipment—The Alpine Troops—Duties—Localisation—Recruiting System—Dress, Armament, and Equipment—Organisation of Alpine Reservists—The Groups—Approximate Strength of each Group—Results Achieved—The Artillery—Administration and Command—The Artillery and Engineer Committee—Territorial Organisation of the Artillery—The 7 c. Gun—Details of Construction—Artillery Material—Clothing, Equipment, and Armament of Artillery Men—Peace Garrisons of Field and Fortress Artillery Regiments—Artillery of the Mobile Militia—Types of Guns—Siege Trains—Artillery Troops of the Territorial Militia—Regimental Transport—The Infantry Baggage Cart—The Squadron Baggage Cart—Battalion and Regimental Provision Carts—The Question of Under-officers—The Military Fund—Causes of the Success Achieved—Instructional Periods—Pay and Messing—General Tone and Appearance of Italian Soldiers—Traditions of the Bersaglieri.

All general matters connected with the duties and interior economy of the Italian infantry are managed by the general direction of infantry and cavalry at the War Ministry. The movements of regiments and all

questions of military law come under the supervision of the secretariat-general's department.

The consulting body for the War Minister on all subjects relating to these two arms of the service is formed by the infantry and cavalry committee permanently stationed at Rome. Fourteen senior officers form part of this committee, but any officer is liable to be temporarily attached for consultation.

All questions of administration, the march of instruction, musketry, etc., are attended to by corps and divisional commanders; questions of importance pass through these channels from the War Ministry. Each regiment of line infantry has a staff, 3 battalions of 4 companies each and a depôt.

In peace a company consists of 4 officers and 100 men; the formation is not radically altered in war time, the reserves swelling the companies to a total of 5 officers and 200 men each. The depôt neither assumes a war formation nor follows the regiment, but remains in its peace garrison or in one of the strong places.

The bersaglieri regiments each consist of a staff, 4 battalions of 4 companies each and a depôt. The battalions are united administratively and tactically into regiments, but as a matter of fact are seldom assembled except during the grand manœuvres. In war time a bersaglieri regiment is given to each army corps, its distribution and general employment being left entirely to the discretion of the corps commandant.

The infantry of the line are dressed in ashy-gray tunics and trousers, gray-blue great-coats, and dark-blue low felt shakos with a peak in front and behind, a metal

star and cockade with the regimental number in the centre.

The low shoes and linen gaiters are modelled on the French style, the knapsacks are of calf-skin with compartments for cartridges, a wooden framework preserving the shape. The waistbelts are fastened by a metal plate bearing the cross of Savoy: carried behind is a movable black lacquered pouch, and on the left side the sword-bayonet.

Each soldier carries, in addition, part of the canvas for a tent, a haversack, wooden drinking bottle, mess-tin, drinking-cup, a tin of preserved meat, and a ration of biscuit. In the pack are spare shoes, underclothing, cleaning materials, and cooking utensils, the total weight of the equipment being 24·318 kilogs.

The bersaglieri tunics are dark-blue, the trousers the same colour with a crimson stripe; the cape also is dark-blue. The head-dress is round, of black felt, with a broad crown and brim and black cock's feathers; the grenade in front is of gilt and has the regimental number in the centre. In all other details the equipment and armament is similar to the infantry of the line. Infantry officers are very well mounted, considering the difficulties encountered with regard to the quality and supply of country-breds.

The Carabinieri Reali, or corps of gendarmerie, were reorganised in February, 1879. They are organised as a military body in order to facilitate the operations of recruiting, to perform the duties of field police and to augment the effective strength of the army. Engagements in the force are for nine years, five being passed

with the active legions, four with the reserve. Re-engagements are permitted and encouraged, while pensions are given after twenty years' service. The force consists of 11 territorial legions and 1 of cadets. The headquarters of the legion are invariably the same as for the army corps to which it is attached; each legion consists of horse and foot carabineers and is divided into companies (provincial commands); lieutenants' sections (district commands); sub-sections (section commands); and stations (post commands). The cadet legion is stationed at Turin, the eleventh at Cagliari for duty in Sardinia.

The strength and establishments of the legions vary considerably according to the state of the country and the requirements of public safety; the southern legions have usually the heaviest effectives.

Two-thirds of the first lieutenants come from the ranks of the active army, the remainder from the carabineer second lieutenants. Half the vacancies are filled by seniority, half by selection. The carabineers are armed with the Carcano musket and a six-chambered revolver, and are still dressed in the antiquated and unpractical swallow-tails and cocked hats, the red plumes and glittering uniforms marking their advent from afar.

The effective strength of the force is 610 officers and 23,565 men.

In the Italian cavalry the distinctions are two in number only: "heavy" and "light." Each regiment consists of a staff, 6 squadrons, and a depôt; the squadron consisting of 5 officers, 160 men, and 122

horses, in peace time. Latterly there has been apparent a decided inclination to increase the number of horses per squadron, and it appears probable that this reform will soon be accomplished.

The first eleven regiments carry lances, and the standard for height is from 1·64 to 1·72 mètres; in the last eleven the standard is from 1·60 to 1·68. The horses of the former vary between 1·52 and 1·60 mètres; between 1·46 and 1·54 for the latter.

On a war footing the squadron numbers 5 officers, 150 men, and 130 horses, the depôt remaining in rear. Four squadrons are taken from each regiment on mobilisation to form the army corps cavalry brigades, the remainder being attached to the active division as divisional cavalry.

The Italian cavalry is by no means a strong feature in the service; the nature of the country is essentially unfavourable for the action of the arm, and the supply of horses is both indifferent and difficult.

The splitting up of tactical and administrative units that results from the peculiar formation of the cavalry brigades must be condemned as an unsound measure. Another vice of organisation consists in the formation, on war breaking out, of 40 *plotoni* of guides for the various staffs, each regiment furnishing half a squadron, consisting of 1 subaltern, 30 men, and 24 horses. The peace footing of the cavalry includes 14,400 saddle horses; 900 are required for the guide *plotoni* on mobilisation; a large proportion of select elements are thus at once taken from an arm that can ill spare a sabre.

The cavalry force is rigidly calculated for purely

defensive action on Italian territory; if the theatre of war was on a foreign soil the proportion would be inadequate, and the arm would be certainly over-matched.

The cavalry tunic is dark-blue, the great-coat and cape gray-blue, the overalls gray. The first four regiments have yellow metal helmets, the remainder have hussar busbies, with black eagle's feathers The Hungarian saddle is used by the men, the English hunting saddle by the officers; the horse appointments are black, a blue cloth valise being carried behind the saddle; other articles of clothing, etc., are rolled up and carried upon the pommel.

The carbine is carried in a leather bucket, the revolver in a holster in front, and spare shoes in a leather pocket; a linen bag carries the bread and oats rations.

The Vetterli carbine is used by all the regiments; the sabre is attached to the saddle, not to the trooper—an excellent innovation. The length of the sabre is 1·062 mètres, the lance is 2·46 mètres, the shaft being ash.

The Alpine troops, recruited exclusively from the mountainous regions, numbered in 1877, 24 companies, or 7 battalions. A better appreciation of the true and peculiar characteristics of Italian defence induced the military authorities to recommend an extension of this organisation in the ensuing year, and the companies were consequently increased to 36, in 10 battalions.

The important point in the new organisation consists in the permanent maintenance of the companies on a war footing of 250 men.

The *rôle* of the Alpine troops consisting primarily

in covering the mobilisation of the army, it follows that their services are required on the very day that war is declared. They would be in no condition to fulfil their *rôle* if distracted and delayed by the incorporation of a large number of reserves. Again, it is invariably the rule that in mountainous districts the population emigrates in considerable numbers during a certain portion of the year.

A striking example of this fact had already warned the country of the dangers incurred by the former organisation.

In 1875, 341 reservists were recalled in order to familiarise them with the use of the Vetterli rifle, but only 97 of these were to be found in the kingdom.

Again, under the old system, all material necessary for the war formation of the companies was stored at the districts and further delays occasioned thereby. By the new regulations these disadvantages have been overcome, but on the other hand it must be noticed that the solidity of the companies has been somewhat impaired by the reduction of the amount of training of the mass. In the new organisation the companies receive annually 80 recruits and include therefore three classes only, of almost equal numerical strength, and with a respective training of three months for the youngest class, one year for the second class, and two years for the third class, supposing war to break out in the spring. Under the old system two-thirds of the company possessed a complete instruction of three years.

From the first of October till the end of March the Alpine companies are concentrated at the headquarters

of their respective battalions; during the remainder of the year they occupy their hill stations and perform drills and manœuvres throughout the summer.

The localisation plan of the Italian infantry shows that 5 battalions of 18 companies are permanently stationed on the French frontier; 1 battalion of 3 companies on the Franco-Swiss frontier; 1 battalion of 4 companies on the Swiss frontier; and 3 battalions of 11 companies on the Austrian frontier.

The recruiting system, in principle, is essentially regional, or, rather, local, each company as far as possible drawing its men from the very neighbourhood of its summer quarters. Strategic requirements, necessitating a comparatively larger number of men on certain frontier sections more open and liable to attack than the others, have militated against the exact demonstration of the problem. The ill effects have not, however, been sufficiently marked to induce the country to negative the principle of local recruiting so characteristic of the whole system.

The companies on the French frontier are brought to their full complement, first by making use of all disposable local elements, and then by drawing recruits from the highlands round Genoa, Plaisenza, Parma and Spezia.

The Alpine company includes 5 officers and 250 men; the entire force in first line numbers 200 officers and 9,090 men; captains of companies are mounted.

Independent action is ensured by a technical personnel of sappers and sanitary detachments. Special regulations dating from the 6th of May, 1879, have

determined the conditions of physique, constitution, etc., to be fulfilled by recruits in order that they may be able to support the hardships and fatigues of the service.

The armament and equipment is similar to the infantry of the line; the head-dress is different, consisting of a Tyrolese hat with a raven's feather, a white star in front having the company number.

The men carry 80 rounds apiece; a first reserve of 15 rounds per man being with the mountain batteries, while further supplies are stored in the hill forts.

The officers and men forming part of the staffs of battalions are distinguished by the battalion number on the shoulder-strap.

For boots or shoes no particular sealed pattern is adhered to; the supply is entirely in the hands of the captains of companies, who are instructed to have them made "on the same pattern as that in use in the valleys where the company is located."

A good supply of the best maps is given to each company and battalion, but these only include the exact zones watched by the particular unit. Each company is allowed a single cart to carry officers' baggage, cooking utensils, camp equipments, etc. Twelve mules are requisitioned on mobilisation, and the necessary packs, etc., held ready for use.

The weight carried by each Alpine soldier is as follows:

Clothing and tentage	14·550 kilogs.
Armament and equipment . . .	5·717 „
Cartridges	3·245 „
Iron rations	1·386 „
Total . .	24·898 kilogs.

The second volume of the "Instructions on the Mobilisation and War Formation of the Army," lays down that with regard to discipline, instruction, and all details of service, the Alpine battalions form distinct bodies, under the direct surveillance, however, of the divisional generals commanding the district in which the battalion headquarters are located.

The administration of the Alpine battalions is centralised in a certain number of military districts as follows :

1st, 2nd, and 3rd battalions,		district at	Coni.
4th and 5th	,,	,,	Pignerol.
6th	,,	,,	Ivrea.
7th	,,	,,	Lecco.
8th	,,	,,	Brescia.
9th	,,	,,	Verona.
10th	,,	,,	Belluna.

The object of these districts is to allow the Alpine battalions increased mobility. Under the old system there were 24 companies in first line with an annual contingent of 960 recruits; the present organisation gives an annual contingent of 2,880 recruits, or, in other words, the reservists have been greatly increased and the companies in first line maintained at the full war strength in peace time. This mass of reservists has been definitely organised into reserve companies, 72 in number, or two of reserve for every active company. This step was due to General Ferrero, who organised 36 reserve Alpine companies and 36 companies of mobile militia in 1881. Both the reserve and the militia companies receive their effective formation on mobilisation only; they are formed at the

summer headquarters of the active companies to which they correspond, the reserve companies with the reservists of the active companies, the mobile militia with old Alpinists forming part of this militia.

Each Alpine company forms, with the corresponding reserve and militia companies, a *riparto* or special group, under the command of a colonel. The cadres are chosen, as regards officers, from the active companies as far as possible, and then from the infantry and bersaglieri regiments, only those of good physique being permitted to join. In order to accustom this reserve to the mobilisation plan it was laid down in November, 1881, that all men should once at least be recalled to the point of formation during their reserve service. The Alpine troops now number 108 companies, divided into 36 *riparti* or groups, each including one active company, one reserve company, and one company of mobile militia.

The approximate effective strength of each group is as follows :

Active company,	3 classes,	83 men per class	=	249 men.
Reserve „	5–6 „	„	=	415 „
Mobile Militia company,	4–3 „	„	=	332 „
	Total for each group .	.	.	996 men.

For the 36 groups this would give a total of 35,856 men, but a deduction of at least 10 per cent. must be allowed from causes connected with emigration, and the effectives may be set down at about 30,000 men.

On mobilisation each company will have behind it two other companies recruited from the kinsmen, friends,

and neighbours of the active company, and possessing an accurate local knowledge that may prove invaluable. "These three companies," justly remarked the *Revue Militaire de l'Étranger*, "form a homogeneous group of experienced and vigorous campaigners, living in continual contact even during their furlough, and therefore possessing the sentiment of comradeship and regimental rivalry to attach them yet closer."

To sum up we may say that Italy possesses to-day 35,000 Alpine soldiers, trained and inured to the hardships and peculiar tactics of mountain warfare; the tentative formation of a brigade of mountain batteries at Turin further affords an artillery support for the active companies in the proportion of 3 guns per 1,000 combatants.

The Italian artillery, as it exists to-day, dates from the year 1860, when a fusion took place between the Piedmontese, Tuscan, and Neapolitan artilleries. Speaking generally, it consists of regiments of field artillery with train companies and instruction batteries attached; regiments of fortress artillery, including mountain batteries and an instruction company; coast, workmen, and veteran companies; and, lastly, the mobile militia batteries forming distinct units.

The duties of the artillery regiments include not only the usual services in connection with the arm, but embrace besides a number of train services already specified.

To some extent it may be said that this arm of the service is still in a transition stage, notwithstanding an existence of twenty-three years. The horse artillery batteries were abolished in 1871, but the prudence of

this step, always questioned, seems at length to have been decided in the negative, and definite regulations for the re-establishment of the service are under consideration. Again, it has appeared desirable to separate the train companies from the artillery regiments of which they still form part; to create a coast artillery, distinct and independent, by making the service a speciality for one of the ten regiments; and lastly, to give complete independence to the mountain batteries, at present formed on mobilisation only by the fortress regiments.

It is of great importance that a regular existence should be given to the latter service, for the Alpine troops, good though they are, will require support in face of a strong attack by superior numbers. The mountain training of the frontier troops has reached a very laudable state of efficiency, but it will be impossible for the mountain batteries to give a real support unless they are equally well taught and trained in the arduous duties of hill fighting.

The officers of the artillery number 1,252 in all, two-thirds being recruited from the Military Academy and the remainder rising from the ranks.

The plans relating to the supply of officers on mobilisation are satisfactory, and the same may be said for the administration of the instructional batteries and regimental schools.

The horses and mules for service with the batteries and trains are either supplied by the remount depôts or obtained by purchase commissions. The remount depôts are at Grossetto (Tuscany), Persano (Naples), and Palmanova (Venetia).

The height of the artillery horses varies between 1·50m. and 1·54m.; the maximum height of the mules is fixed at 1·46m. On mobilisation, the additional horses required are obtained, if possible, by requisition, and lists are prepared for this purpose during peace time.

The requisition commissions are composed of three members, an officer, a provincial councillor, and a veterinary surgeon. The officer, as a rule, is taken from the royal carabineers.

All administrative matters connected with the artillery services are practically centralised in the War Ministry, under the artillery and engineer direction, assisted by the committees of these arms. Orders are issued to the territorial artillery commands, and are thence transmitted to the various corps, territorial directions and establishments.

The general direction of the artillery and engineers includes three principal divisions: (1) For the personnel of the two services; (2) for the artillery material; and (3) for the engineer material.

The director-general is a major-general, and the divisional chiefs under him colonels. At present the artillery is represented by twenty officers at the general direction. The duties of the department have regard to the organisation of the two services, to the orders and instructions relating thereto, to questions of material, of technical and administrative matters, and of fortifications and military buildings.

The artillery material includes the field, siege, coast,

and fortress material, carriages, harness, arms, and ammunition. All questions of discipline, general service, and instruction are attended to by corps and divisional commanders.

The artillery and engineer committee was formed in September, 1873. It is the chief consulting body for the War Minister in all matters relating to the two arms. It has no distinct command; its *rôle* is to study all questions susceptible of improvement, and to call the attention of the Minister of War to the subject by laying its deductions and suggestions before him. The committee is formed by some fifty officers of various grades, the president being a general or lieutenant-general.

For tactical and administrative purposes the kingdom is divided into six territorial artillery commands, including twelve territorial directions and fourteen directions of artillery establishments. The territorial directions are generally subdivided into a varying number of local artillery commands, established at important towns or strong places.

The following table shows the territorial organisation:

Territorial Commands.	Territorial Directions.	Districts.	Local Commands.
Turin	Turin	Turin, Ivrea, Pignerol, Vercelli	Bard, Exilles, Fenestrelle.
	Alexandria	Alexandria, Coni, Mondovi, Casale	Casale, Vinadio.
Plaisenza	Plaisenza	Plaisenza, Cremona, Lodi, Parma, Pavia, Voghera	Pavia, Parma, Pizzeghettone.
	Genoa	Genoa, Savona, Spezia	Savona, Spezia, Ventimiglia.

Territorial Commands.	Territorial Directions.	Districts.	Local Commands.
Verona	Verona	Verona, Mantua, Milan, Varese, Monza, Como, Brescia, Bergamo, Lecco	Milan, Brescia, Peschiera, Rocca D'Anfo, Legnago, Mantua, Bergamo.
	Venice	Padua, Trevisa, Bellieni, Venice, Udine, Vicenza, Rovigo	Chioggia, Palmanova, Trévisa.
Bologna	Bologna	Bologna, Reggio d'Emilia, Modena, Ferrara, Ravenna	Modena.
	Ancona	Forli, Pesaro, Ancona, Macerata, Ascoli	
Rome	Florence	Florence, Leghorn, Lucca, Pistoia, Sienna, Arezzo, Perusa, Spoleto, Orvieto	Leghorn, Portoferraio, Sienna, Orbitello.
	Rome	Rome, Frosimone, Cagliari, Oristano, Sassari, Foggia, Feramo, Chieti, Aquila, Campobasso	Civita-Vecchia, Aquila, Campobasso, Foggia, Cagliari, Sassari.
Naples	Naples	Naples, Caserta, Nola, Gaëte, Benevent, Salerno, Campagna, Avellino, Bari, Barletta, Lecce, Taranto, Potenza, Catanzaro, Reggio, Cosenza, Castrovillari	Capua, Gaëte, Salerno, Bari, Brindisi, Lecce, Potenza, Catanzaro, Reggio.
	Messina	Palermo, Cefalu, Trapani, Girgenti, Caltanisetta, Messina, Catania, Syracuse	Palermo, Syracuse, Girgenti

The territorial artillery commanders are the permanent inspectors of the whole of the services relating to their arm in the district under their command; they also exercise surveillance over the waggons and harness in the possession of the military districts.

The territorial artillery direction commanders have administrative and technical charge of all material in

their districts, not actually in the possession of batteries or establishments; the local artillery commanders in the same way have charge of all material in their command, and correspond directly with the territorial directions. They are further charged with the preparation, during peace time, of the artillery defence of the position or fortress they occupy.

Each regiment is composed of a staff, 3 brigades numbering 10 batteries in all, a train brigade of 3 companies and a depôt. The batteries are heavy and light, the former armed with the 9 c., the latter with the 7 c. cannon.

The light 7 c. gun,* being a new type of weapon, requires a short notice. It is made of a kind of condensed bronze, invented by General Rosset, formerly director of the Turin Foundry. The liquid bronze is poured into cast-iron moulds in place of the sand or earthen types generally used, and the cooling of the metal accelerated thereby. The exterior of the weapon is then fashioned by the ordinary methods, but the interior is bored with a smaller calibre than that required for the gun when finished. It is then solidly enveloped in cast iron, and the necessary calibre gradually obtained by steel wedges which are almost imperceptibly increased in diameter and forced into the interior of the gun. In this way the bronze, while preserving its inherent and remarkable tenacity, acquires a degree of elasticity that has been favourably compared with Krupp's famous steel. With regard to the system of the 7c. gun it has a cylindro-

* See the "Royal Artillery Institution Journal," 1877. *L'Esercito*, March 25, 1877.

prismatic steel wedge (Krupp's) and a Broadwell expanding steel ring or gas check let into the steel plate of the round wedge closing the breech and taken by a steel ring let into the bore. Between the steel plate and the wedge there is a copper disc. Everything about the weapon is on a small scale, and yet everything is not sacrificed to lightness. The gun carriages are of plate iron, a few small parts being of wrought iron; the spokes and felloes of the wheels are of wood. There is a seat on each side of the gun and on the axle-tree; a break is applied instead of a drag.

The limber has a steel axle with a prismatic axle-tree bed of peculiar construction, the pintail passing through two movable parallel iron bars, the axle forming a pivoting plate, changeable into two different positions. The height of the axis of the trunnions is $41\frac{1}{2}''$ above the plane, the radius of the wheel is $24{\cdot}8''$, leaving a vertical distance between the axis of the trunnions and the centre of the axis of the two wheels of about $16\frac{1}{2}''$. In the gun carriage an equilateral triangle, constructed on a base of the distance between the outsides of the tyres as they rest on the ground, gives the height of the centre of gravity of the gun and carriage combined, and thus the upsetting angle is over 60°. This is a defect, since the centre of gravity of the gun and carriage taken together is raised, and the whole rendered more liable to an upset. The height of the axis of the trunnions of the gun-carriage, $41\frac{1}{2}''$, has been considered necessary owing to the tall crops of maize, etc., with which the plains of Upper Italy abound.

The great advantage gained is that the extravagant

weights drawn, for instance, by English artillery teams, are immensely reduced, while this desirable object is attained without sacrifice to the shooting powers of the gun, or the strength of the material. Comparing the weights drawn by the respective teams, we find that the Italian horses draw 100 lbs. for every 138 lbs. of the English teams.

The projectiles used are common shell, shrapnel and case; the shells splinter into sixty fragments of equal size; the highest elevation that can be given is 20°; the extreme range 5,640 yards. The projectiles weigh $8\frac{3}{4}$ lbs., and have an initial velocity per second of 1,312′, combined with great accuracy.

Experiments have proved that at the extreme range the sides of the rectangle containing all the hits are 23 and 167 feet. At 547 yards, 100 per cent. hits were obtained firing at dummies representing a company deployed; at 1,093 yards, 83 per cent. hits; at 2,817, 23 per cent.; and at 3,062, 30 per cent.

There is a remarkable similarity between the field artilleries of the various continental powers, both as regards calibre and power of the guns.

In each great military state we find, generally speaking, two types or calibres, a light gun varying between 2·9 and 3·4 ins., and a heavy gun with a mean calibre of 4 ins. Italy has not ventured upon any material deviation from this rule, but as regards lightness, so important for tactical mobility, she is in the first rank, for the new light guns in question weigh 6 cwt. only.

It has been noticed that the horse artillery batteries

were abolished in 1871. Recently the want of artillery support for light troops, pushed boldly and rapidly forward, has been severely felt, even in peace manœuvres. Pending a re-organisation of this service, certain experiments have been undertaken in order to compensate for this deficiency in case of need. In 1880 some batteries of the 7th and 10th Regiments acted as horse artillery batteries during the grand manœuvres, but the construction of the guns and limbers only allowed a certainty of four servants per gun instead of six, the usual number. Such a matter was of apparently little importance in peace, but would scarcely fail to tell its own tale in the face of well-posted riflemen under modern conditions of warfare.

The heavy 9 c. guns are drawn by six horses, the light 7 c. guns by four horses; the waggons of the light batteries have four horses, but the ammunition waggons only two. The 4-wheeled ammunition waggon consists of a limber and body. The 2-wheeled cart is drawn by one horse, and carries ammunition boxes holding 160 gun projectiles and 24,000 rounds S.A.A.

The train companies have each 8 carriages, 3 for transport, 3 ambulance, 1 forge, and 1 light baggage cart.

Each regiment possesses, in addition, a portion of the material necessary for the various units on mobilisation; the train waggons are for the most part kept at the central depôts. The material of the mobile militia batteries formed by the regiment in case of war, is in charge of the corps of territorial artillery during peace time.

In each regiment the 1st and 2nd brigades include each 2 light and 1 heavy battery. The 3rd brigade has 2 light and 2 heavy batteries.

The material in peace time includes:

	Heavy.	Light.
Pieces	4	6
Caissons	4	6
Battery carts	2	2
Forges	1	1

In 1879 the Bazzichelli percussion fuse replaced the notoriously defective one formerly in use.

Gunners are armed with the artillery sword (*daga*); men of the train with a Vetterli carbine and sword-bayonet. The under-officers, corporals, and trumpeters, are armed with the artillery sabre (*sciabola*) and the Lefaucheux revolver. The light 7 c. gun carries:

160	rounds of shell, shrapnel, and case, with the battery.						
200	,,	,,	,,	in the divisional artillery park.			
100	,,	,,	,,	,,	corps	,,	,,
100	,,	,,	,,	,,	army	,,	,,

Or 560 rounds per gun. For the heavy gun 40 additional rounds are carried with the battery, or 600 rounds in all.

The harness is made of rope and covered with black leather; all draught horses of guns and waggons are trained to and carry saddles. The harness of the train columns is of raw hide.

The mounted portion of the artillery is equipped as cavalry in all important points, while the gunners are equipped as infantry, their packs being carried partly on the limbers and partly on the horses.

Foreign critics have sometimes complained of the general and technical instruction of the artillery, but they do not always attribute it to the right causes. A gunner is a very hard-worked man in all armies, and it must always be a matter of difficulty to possess a smart, well-handled artillery under the short service system pushed to its extreme limits. In Italy the difficulty is increased by illiterate recruits, by the inferior supply of badly trained horses, by second-rate barrack accommodation and other causes, all combining to render it no easy matter for a man to master his duties properly in a limited time. The following table shows the usual peace garrisons of field and fortress artillery batteries:

FIELD ARTILLERY.

1*st Regiment.*—Six batteries, 2 train companies and depôt at Foligno; 3 batteries and 1 train company at Rome; 1 battery at Terni.

2*nd Regiment.*—Five batteries, 2 train companies and depôt at Ferrara; 1 battery at Mantua; 3 batteries at Modena; 1 battery at Ravenna; 1 train company at Ancona.

3*rd Regiment.*—Six batteries, 3 train companies and depôt at Bologna; 3 batteries at Forlì; 1 battery at Faënza.

4*th Regiment.*—Five batteries and depôt at Cremona; 3 batteries and 3 train companies at Plaisenza; 2 batteries at Parma; 2 train companies at Genoa.

5*th Regiment.*—Seven batteries, 2 train companies and depôt at Venaria Reale (Turin); 3 batteries and 1 train company at Alexandria.

6*th Regiment.*—Five batteries, 2 train companies and depôt at Vigevano; 4 batteries and 1 train company at Milan; 1 battery at Novara.

7*th Regiment.*—Six batteries, 1 battery of instruction, 2 train companies and depôt at Pisa; 1 battery at Leghorn; 3 batteries and 1 train company at Florence.

8*th Regiment.*—Seven batteries, 2 train companies and depôt at Verona; 1 battery at Trevisa; 2 batteries and 1 train company at Padua.

9th Regiment.—Seven batteries and depôt at Pavia; 1 battery at Bergamo; 2 batteries at Brescia; 3 train companies at Turin.

10th Regiment.—Two batteries, 1 battery of instruction, 2 train companies and depôt at Caserta; 2 batteries and 1 train company at Naples; 4 batteries at Persano; 2 batteries at Palermo.

Fortress Artillery.

11th Regiment.—Seven companies and depôt at Capua; 1 at Naples; 3 at Gaëte; 2 at Messina; 1 at Palermo, and 1 at Venaria Reale.

12th Regiment.—Six companies and depôt at Ancona; 1 at Venaria Reale; 2 at Bologna; 2 at Rome; 3 at Alexandria; 1 at Turin.

13th Regiment.—Five companies and depôt at Mantua; 3 companies at Turin; 3 at Verona; 3 at Plaisenza; 1 at Cirié.

14th Regiment.—Six companies, 1 instruction company and depôt at Genoa; 2 companies at Turin; 3 at Venice, and 4 at Spezia.

The staffs of field and fortress regiments are invariably at the same stations as the depôts. Stations are changed every six months by batteries, every three months by detachments.

There are numerous detachments found by the artillery. These are recalled to headquarters on mobilisation.

From the above list it is sufficiently evident that there is a great preponderance of strength in the northern districts, and that consequently southern Italy is somewhat denuded of the arm.

The mobile militia forms in war time field artillery batteries; the territorial militia, fortress artillery companies only. Each regiment of artillery forms the batteries for a mobile militia division, three in number, as well as a train company. Up to the year 1881 each

regiment of fortress artillery possessed the material necessary for the formation of two mountain batteries. The six batteries lately brigaded together are doubtless the first steps towards a more suitable organisation. This brigade is stationed at Turin, passing the summer months in the Alps, and is in a condition to start at the shortest notice for the front, with six guns per battery. At present not more than twelve mountain batteries could be immediately mobilised in case of war.

The field artillery material includes 784 7 c. guns and 400 9 c. guns. The number of cartridges available for the light gun are 243,172; for the heavy gun, 128,330. Of the light weapons, 480 are with the batteries, with 600 cartridges apiece and 200 in reserve; 52 in the parks, and 92 in various other services. The remaining 160 will form 20 reserve batteries, with 300 rounds per gun. There is also another reserve of 15 batteries of 9 c. guns, with 300 rounds per gun.

The coast artillery includes 100 cannon of 24 c., with 19,960 projectiles; 40 cannon of 32 c., and 1 of 45 c.

In what is called the second formation of the field batteries there are 6 guns per battery; in the third formation, 8 guns. If then there are difficulties encountered in the supply of horses, the number of guns with an infantry division may be only 18 instead of 24.

Two-thirds of the guns of an active division are 7 c. weapons. The mobile militia batteries are exclusively composed of 9 c. muzzle-loading cannon. It appears probable that a brigade of three light batteries,

with six horses to each gun, will be given to each cavalry division on mobilisation.

In war time each regiment, in principle, furnishes the artillery services of an army corps, staff, batteries, and train; the two first brigades forming the divisional artillery brigades, the third being in reserve.

In the train brigade one company is split up into a number of sections for staff duties, directions and accessory services; a second is given to the army corps artillery park, and the third is divided between the staffs, directions and accessory services of divisions, and divisional artillery parks.

The regiments of fortress artillery, on mobilisation, complete their war footing, and each forms five companies of mobile militia. Supposing three artillery parks are formed six companies will be absorbed thereby, twelve others will become mountain batteries, and nineteen only will remain for the attack or defence of strong places, coast defence, etc. The material of the fortress artillery belongs to a great diversity of types and includes many varying calibres. Two categories are generally named, the first including the regulation types, the second the older weapons, whether Piedmontese, Neapolitan, Austrian, or French.

The former include 12 c. and 16 c. R.M.L. cast-iron guns; 22 c. R.M.L. steel guns; 22 c. R.M.L. cast-iron and bronze howitzers; 15 c. and 22 c. S.B.M.L. cast-iron howitzers; 15 c. S.B.M.L. bronze mortars; 22 c. S.B.M.L. cast-iron mortars; 5 c. S.B.M.L. bronze guns for flank defences; and 24 c. and 32 c. R.B.L. cast-iron guns. The second category includes 9 c. to 27 c. Piedmontese,

S.B. and R. guns; 12 c. to 32 c. Neapolitan guns; 12, 17, and 22 c. French naval guns; and 9 c. to 24 c. Austrian guns.

Italy also possesses two siege trains of 200 guns each, in reserve, at Plaisenza and Mantua. Each park includes:

60	rifled	cast-iron	16 c. guns.
100	,,	bronze	12 c. ,,
30	,,	,,	22 c. howitzers.
10	,,	,,	15 c. mortars.

With each park there will be a train of 1,310 waggons and 4,280 horses, or a number of traction engines of corresponding horse-power.

Each park is divided into independent sections in order to facilitate the service during peace or war. These sections are: (*a*) gun sections, with a first reserve of 200 projectiles per gun, and 505 each for the mortars; (*b*) ammunition sections; (*c* and *d*) accessory sections.

The artillery troops of the territorial militia are formed by the districts; in principle 100 companies are thus formed, 35 formed into 16 brigades, and the remainder forming independent companies.

The Italian artillery, while it cannot altogether be called a well and solidly organised body, has many good points, and, as far as regards actual cannon power, challenges comparison with any other military state. It has, however, multitudinous duties to perform quite distinct from its chief *rôle*; it is burdened with a number of accessory services, while it must perforce accomplish the process of mobilisation with relatively sparse means. On the other hand, a convenient preparation and partition of the material, combined with a

very energetic application of the laws on the requisition of horses, may successfully overcome all these difficulties. In 1859, in 1860–61, in 1866, and in 1870, the artillery always provided the ammunition supplies for corps and divisions, and no delays can be justly attributed to lack of energy in the artillery services.

The regimental transport—in first line—of the three arms is as follows :

		Infantry Regiment.	Bersaglieri Regiment.	Cavalry Regiment.
Personnel		24	30	35
Draught horses		34	44	64
Draught and pack horses		2	2	2
Carts and carriages.	Baggage carts	4	5	7
	Cooking carts	4	5	7
	Cavalry field forces	—	—	6
	Provision carts	3	4	—
	Ambulance waggons	1	1	1
	Forage carts	—	—	6
	Reserve provision carts	6	8	—

An infantry or bersaglieri baggage cart carries :

4 boxes reserve clothing, etc.
4 ,, office stores.
24 ,, officers' baggage.
1 box shoemaker's implements.
1 ,, tailor's implements, etc.

The total weight of load being 775 kilogs. ; the weight of cart and harness, 458 kilogs. ; total, 1,233 kilogs.

A squadron baggage cart contains :

1 chest reserve equipment.
1 ,, ,, clothing.
1 ,, office stores.
10 ,, officers' baggage.
1 ,, shoemaker's tools.
1 ,, tailor's tools.
8 ropes for picketing.
20 pickets, etc., etc.

Total weight of load, 470 kilogs.; weight of cart, etc., 458 kilogs.; total, 928 kilogs. The squadron forage cart has 136 forage rations, etc.; total weight, 2,165 kilogs.

A battalion provision cart has:

12 sacks of salt, sugar, bread, coffee, rice, and bacon (800 rations complete).
2 sacks for officers' mess.
2 casks wine (30 litres).
4 sacks for soldiers' mess.

Weight of load, 984 kilogs.; including cart, etc., 1,460 kilogs.

A regimental provision cart carries:

Bread cart,	1,980	rations	biscuit (900 kilogs.)
Oats „	240	„	oats (976 kilogs.)
Coffee „	14,400	„	salt, coffee, and sugar (940 kilogs.)

The total weights are: Bread cart, 1,475 kilogs.; oats cart, 1,461 kilogs.; coffee cart, 1,353 kilogs.

The question of non-commissioned officers is one that materially influences the discipline, well-being, and backbone of every tactical unit, whether in camp, garrison, or in the field.

The Italians perceived at once that it was useless to place youths above their fellows when their services could only be calculated upon for a very limited time. It was therefore laid down that no man could be advanced in grade unless he specially contracted to serve for eight years in the active army. Special schools were established at the same time—for the infantry, at Maddaloni, Asti, and Senigallia; for the cavalry, at Pignerol; for the artillery, at Caserta, Pisa,

and Genoa; and for the engineers, at Pavia and Casale. These instruction battalions are filled by recruits of the better classes, who contract for eight years, as well as by voluntary engagements from the line and bersaglieri regiments, etc.

The contract may be taken by a man, if approved, at any time that he shows a keenness for the duty, and without waiting for any possible disillusion as the hardships and penalties of military service come to be better understood. The district commandants in particular are authorised to point out to the best recruits the advantages of this contract.

Three re-engagements are permitted, for three years at a time, as it is always found that men will from preference engage for a limited time, rather than surrender their personal liberty for longer periods.

The re-engagement dates from the end of the man's army service, but the man may contract at any time of his army service, if approved.

As each re-engagement entitles the under-officer to a very considerable bounty, it follows that this provision snares a number of men who would otherwise have probably passed out of the active ranks.

It serves its purpose, without doubt, but to English ideas it partakes too much of the nature of the trap.

A saving clause for men re-engaging is that the contract can be annulled for satisfactory family reasons on the under-officer giving up all the advantages that accrue to him from his re-engagement.

The Italian under-officers belong for two years to the reserve of the active army, and for two more to the

mobile militia, and then pass into the territorial militia; but they can be readmitted to active service if well conducted, unmarried, under 35 years of age, and with less than one year's militia service. In this case they are bound to contract again for eight years, and become entitled to the re-engagement bounty after one year's service.

It is evident that since comparatively few under-officers exist in the reserves of the active army, mobilisation produces no corresponding increase sufficient to consolidate the cadres. This difficulty is overcome by the one-year voluntariat, which annually supplies 800 reserve under-officers, or about 6,000 on mobilisation.

Under-officers have rooms to themselves; a mess, serving as reading and ante-room, and various other indulgences.

They have special cells for punishment, and their rank can only be taken away by a court-martial of five members, presided over by a field-officer.

Men who desire to rise in rank attend special instruction schools for this purpose; one-third of the vacancies in the subaltern ranks of the army are filled by the best under-officers.

On an average it has been found that the instruction battalions furnish 1,200, regimental promotions 431, and re-engagements 307 under-officers per annum. Taking count of the army service that men promoted must have, we find that in six years there are some 7,200 under-officers. Add regimental promotions and re-engagements for the same period ($431 + 307 \times 6$), and we find the whole number available to be 11,628.

As the cadres only require 10,323, the desired results are attained.

The annual bounty on re-engagement is 150 lire. This is gradually increased to 600 lire per annum in the fifteenth year. The bounty on leaving after seventeen years' service (eight years' enlistment and three re-engagements of three years each) is 360 lire; a pension is given after twenty-five years' service or after 45 years of age. This is evidently an expensive system, and it could be met only with difficulty if the military fund did not exist. The whole of the extra pay and bounties are drawn from this fund.

The fund itself comes from the one-year voluntariat. Each man entitled to this comparative exemption pays 1,600 lire in the cavalry, 1,200 lire in the other arms. As there are annually some 4,000 one-year volunteers, and as some 8 per cent. are in the cavalry, the sums received amount to :

From 320 men in the cavalry	. .	512,000 lire.
„ 3,680 „	other arms . .	4,416,000 „
	Total . . .	4,928,000 lire.

The extra pay for the under-officers in the service amounts annually to 1,747,500 lire; 3,180,500 lire therefore remain for the bounties. The secret of the system consists, first, in the original eight years' enlistment; secondly, in the bounty on re-engagement.

Objections may certainly be raised to some points of the system, such as for instance the re-engagement bounty, which has been objected to on the ground that it cultivates a mercenary spirit in the men.

But fantastic notions which would attribute to soldiers a kind of ideal existence above all influences of sordid gain are unpractical and absurd. Every man is entitled to do the best for himself, and if the conditions attached to the service of under-officers prove satisfactory to both contracting parties, then the result is certainly a success which no ideal suppositions can minimise. If at some future date the one-year voluntariat is abolished the military tax will probably be resorted to to supply the military fund. This tax, which would ensure that those who do not serve the state in person should still contribute personally towards its safeguarding, is but another expression of the universal obligation of every man to service, a matter that has been most emphatically affirmed and reaffirmed in Italy.

There are two distinct instructional periods recognised: summer and winter.

The winter is passed in elementary schooling, squad and dismounted drill, riding lessons, gymnastics, interior service and special instructions for the recruits.

In the summer the drills and manœuvres are on a larger scale: company, battalion, and regimental drills take place; the men are instructed in musketry, the conduct of waggons, the manœuvring of batteries, the construction of hasty field works, gun-pits and entrenchments, while the autumn is passed in manœuvres in camps of instruction, and lastly in grand manœuvres.

During both periods theoretical principles are inculcated, marches executed, the men learn the rules of aiming, the elements of fencing and other rudimentary matters. The instruction of recruits lasts six months

for men of the first category, six weeks for those of the second category.

The men of all arms are paid daily, five days in arrear, in camp, on the march, or in war time. The infantry soldier is paid 0·960 lire a day; the bersaglieri, engineers, fortress artillery, and Alpine companies, 1·030 lire; the cavalry, field artillery, train companies, and veterans, 1·060 lire; the royal carabineers, 2·51 lire. The messing allowance is included in the daily pay.

There are two meals in the day: in the morning, soup, with bread and vegetables; dinner after twelve o'clock varying with the climate and local conditions.

The day's ration consists of: 200 grs. of meat, increased on active service to 300 grs.; 910 grs. of bread; 150 grs. of rice; 20 grs. of salt; and 15 grs. of bacon or vegetables. Twenty-five centilitres of wine, or 15 grs. coffee and 22 grs. sugar are also allowed in special circumstances.

The general tone of the men and the self-denying patriotism so universally exhibited is nowhere perhaps so thoroughly honest and healthy as in Italy; it is no transient enthusiasm evoked by the heroism or capacity for leadership of a single man, but the very life and soul of the newly-acquired liberty and union.

Italian regiments possess the happy medium of *élan* and solidity combined. It cannot be said of them as Cæsar said of the ancient Gauls: "They begin by being more than men, and end by being less than women."

The men themselves are built on a small scale, certainly, but this does not necessarily imply inferiority

of physique, for there is a depth of chest, breadth of shoulders, and freeness of movement that amply compensates for want of stature and forbids one to criticise in a hostile spirit.

Italy, for her population, trains a comparatively smaller number of men for war than her neighbours. The material, on the other hand, is better, partly on account of the smallness of the town populations compared with the dwellers in the agricultural and pastoral districts, and partly on account of the great latitude possessed by the recruiting commissions in discharging those of inferior physique. These factors prevent the infantry of the line degenerating into a pool of Siloam for all those rejected from other branches of the service, and the innate worth of the army is consequently elevated.

The private soldiers have an unwritten code of honour, successful in the preservation of great *esprit de corps*. Many evils are from this cause avoided which the mere fear of punitive measures would not materially discountenance.

The curse of the bersaglieri is the detachment duty they are forced to undergo, harassing in itself and fraught with detriment to the individual training of the men and the *ensemble* of the general organisation in case of war. One whole regiment and seven detachments of battalions are scattered far and wide, in small parties, over Sicily alone. One-fourth, therefore, of the available bersaglieri will either remain uselessly in the island on the outbreak of war, or else (as appears more probable) the inhabitants will be left to the tender

mercies of brigand gangs, suppressed and disbanded even in these days with no small difficulty.

The traditions of the bersaglieri foster a spirit of independence, initiative, and activity that cannot be sufficiently praised and commended. "The nation," exclaimed General Ricotti from his place in Parliament, "sees with pride these sombre battalions dashing by like a tempest, their plumes waving in the breeze, and personifies in them the youth and regenerated strength of our beloved country!"

CHAPTER VI.

CHARACTER, TRAINING, AND TACTICS.

General Considerations—Effect of National Characteristics upon the Military System of a State—Germany, France, Russia, Austria, Turkey—Universal Fondness for the Cold Steel—Military Literature—German and Italian Education—Absence of Tactical Originality in Italy—Italian Character—Napoleon, Della Marmora, S. Petrucelli, Metternich—Increase in Material and Moral Well-being—The Infantry Soldier—The Military Colleges, Schools, and Academies—The Higher War School—Railway Instruction—Schools for Under-officers—The Cadres of the Battalion—Attack Formation—Camps of Instruction—Corps Manœuvres—Cavalry Manœuvres—Musketry Regulations—Gallery Shooting—The Territorial Troops and Partisan Warfare—The Alpine Recruits—Lieutenant Bertelli—Alpine Defence, and Duties of the Mountain Troops—Salient Points of Organisation—Drill and Instruction—The Barrier Forts—Civil Labour Afforded on Mobilisation—A Danger for Italy—Opinions of the Worth of Alpine Resistance—Musketry Practice of the Alpine Troops—Marching Powers—Peculiarities of Training—Proportion of Artillery—Unfavourable Nature of the Country for Cavalry Action—Venetia the Exception—The Austro-Hungarian Cavalry—Cavalry Sappers—Course of Instruction—Dismounted Action Imperfect—Qualities of the Bersaglieri—The Grenadier and the Rifleman—A Reminiscence of Della Marmora—Cavalry and Bersaglieri.

"L'HABITUDE des combats," wrote Napoleon, "la supériorité de la tactique, et le sang-froid du commandement font seuls les vainqueurs et les vaincus."

An inquiry into the tactical training and peculiar methods of war employed in the various continental armies shows that historical traditions, national characteristics, and practical teaching are productive of a regular system in each great military state, similar, perhaps, to a mere casual observer of figures and drill-books, but yet widely differing in actual application.

In Germany, *facile princeps*, we find that a distinguishing *trait* of late years has been *the offensive* pushed to its extreme limits, and yet saved from undue exaggeration by those solid national characteristics which ensure an intelligent comprehension of the minutest details. The rigid discipline and accurate fire-command so zealously maintained by German battalions are as worthy of note and as remarkable in their results as the high organisation of the administrative and accessory services.

The military virtues and failings of the French are known to all. Brilliant fighters, hardy marchers, accomplished campaigners, with a more glorious series of victories to look back upon than any other army in Europe, they lack that grim determination under misfortune that has enabled their northern neighbours to recuperate their energies under the most depressing defeats and disappointments.

The third Napoleon well understood his countrymen when he planned his desperate scheme for rapid offensive action against the heart of Germany, but when the superior numbers and organisation of the latter state forced him to look to his own defence the heart was soon eaten out of the French army; despair, demorali-

sation, and defeat followed in rapid succession. And yet even in those dark days, if we carefully examine the often conflicting reports of skirmishes, sieges, and battles, we cannot shut our eyes to the fact that at Wissembourg, Wörth, Spicheren, and Gravelotte, that is to say before the ebb of demoralisation set in, the French showed desperate valour against overwhelming odds, and established, even in defeat, their right to the claim of more brilliant natural military virtues than their all-powerful conquerors.

Russia is distinguished by what may be called the Suvarovian system, rough, uncompromising, barbarous, and only slightly modified by the costly and disastrous lessons of the late campaign in Bulgaria. Suvaroff's maxim, "Parla doura, tchick maladiets," "the ball's a fool, the bayonet a hero," sums up the system which misleading successes against ill-armed and ill-disciplined Asiatics have deeply engrained in Russian hearts.

Of the Austrians Talleyrand said: "Ils se battent bien, mais ils ont la tradition de la défaite."

St. Cyr, while remarking that they possess "de grandes qualités guerrières," adds that they are "an amalgam of many nations, differing in character, and yet working well together. . . . With time and the perseverance that has always characterised their Government, they have succeeded in occupying a distinguished position among military nations."

The Austrian infantry has invariably given evidence of military virtues of the highest order, of coolness in victory and of fortitude under defeat: the Austrian cavalry, now the best in Europe next to our own few

but gallant horsemen, has never hesitated in sacrificing itself to the last drop of its blood, whether in pursuit of a beaten enemy or in covering the retreat of its own battalions.

The Turks again, in common with other Oriental soldiery, combine an inconceivable strategical inertness with remarkable tenacity in direct resistance, rendering operations of an enemy both feasible and advisable which would be condemned as hazardous in face of a European foe.

Other nations and people possess in the same manner what are, or are imagined to be, peculiar points of excellence or the reverse. The divergence is most marked in the case of those states that have more recently submitted their respective systems to the rude test of actual warfare, while the gain is admitted for those nations which have profitably laid to heart Napoleon's maxim: "Il faut changer la tactique de la guerre tous les dix ans, si l'on veut conserver quelque supériorité."

One peculiar point, worthy of remark, consists in the fact that a variety of what are but episodes in the stirring histories of the wars of the past century have induced every single army in Europe to consider the bayonet as its own especial weapon, the *arme blanche* as its own peculiar province, and in spite of all modern teaching and theorising to place implicit trust in the cold steel whenever and wherever its employment is practicable.

Conditions of race and traditions of history are two most potent factors in war, and will ever influence for good or evil a national system of military training.

Nations, gleaning perhaps very similar lessons in the abstract from the practical experiences of past years, still, while they servilely copy one another from the posting of a sentry to the march-formation of an army, from natural causes fail to grasp as their inheritance those inherent and unwritten peculiarities which actually form the hidden foundation of the architecture they strive to imitate.

There is in Italy a strange absence of past masters in the art of war, and in expounding its principles, appearing stranger still when we remember the many struggles which Italy has more or less actively assisted in during the last thirty years. This fact has misled some German critics into the hazardous assumption that Italy is not a military nation; such an assertion might perhaps be true if it could be proved by the mere absence of pedantic military book-lore alone.

German primary and secondary education are of immense utility in cultivating and forming men of thought; but from a military point of view a severe course of brain-work too often sacrifices to the shrine of learning those energies which might otherwise have been devoted to action. It is a common complaint of Prince Bismarck's that habits of thought and action are seldom thoroughly developed and united among the leading men of the empire. When we consider the dissimilar conditions of Italian primary education, a matter of common notoriety, we cannot be surprised if the soldier-writers of the country fail to reach that degree of theoretical excellence attained to by the literary luminaries of military Germany.

Again, as regards general literature, the rapid march of events in Italy has been the work of all ranks and all classes; all have been engaged in making history, few have had time to write it.

We admit that a certain absence of independent military thought and consequent tactical originality exists in Italy. Besides the causes already briefly touched upon, we must remember that there have been no recent and purely Italian successes in the field sufficient to warrant any generalising or dogmatic assertion of distinctive characteristics in the national forces, often though the shout of "*Savoïa*" has been heard above the din of battle. The result of this is that if we look through Italian regulations for drill, for manœuvres, or for field service, if we watch the annual manœuvres or drills on a less extensive scale, we find no salient points standing out distinct and unmistakable, as in the case of almost every other nation in Europe.

The regulations are unimpeachable, save in a few matters of detail, and the lessons of the past have been in no way neglected, but there is just something wanting, and perhaps this something may be traced to a certain absence of individuality, of that peculiar genius for war that is productive elsewhere of such striking originality in the theory and practice of all matters relating to tactics.

It would be going too far to say that Italian regulations are but a tasteless *réchauffée* of better things prepared elsewhere, but it is certain that individuality is seldom conspicuous, and that there seems to be both

caution and hesitation in developing it. It is only by striving to make the best use of national aptitudes that victories can be gained and conquests held.

The individual character of an Italian is less easy to lay bare and dissect than that of a representative of any other European family.

"Les Italiens," writes Napoleon,* "sont faux. Séditieux sous un gouvernement faible, ils ne redoutent et ne respectent qu'un gouvernement fort et vigoureux."

Even General Della Marmora roughly and with soldier-like bluntness said:† "The spirit of cunning and deceit is one of the principal vices of Italians, and one of the fundamental causes of their bad moral situation. It is time to renounce such ignoble habits."

Often audacious in confronting danger, the Italian is equally prudent in withdrawing from it without risk to himself; in a foreign country he adapts himself so readily to local customs that his nationality is not easily distinguished.

He is patriotic in his love of home and country, seldom emigrating save for a season. Sober, physically and morally, he is seldom brilliant, rash or precipitate, and though self-confident he is slow in decision. He is economical and far-seeing; the chief faults in Italian character are traceable to the long dominion and corrupting influence of unsympathising aliens.

"The moral world of an Italian," writes Signor Petrucelli, "is not exactly that rendered sacred by the

* "Correspondance de Napoléon I.," ch. xii., p. 18.

† "Agli Elettori di Biella," p. 6. Jan., 1880.

consciences of other peoples; Italian ethics are the least Catholic in Europe."

Full of finesse, suppleness, and practical sagacity, the Italian delights in complications and intrigue; as a diplomatist he often shows intellectual ability of the highest order.

Prince Metternich has left on record the following sketch: "The Italian has his peculiar methods of hating and of conspiring. To destroy you he will become more pious than the Pope, more humble than the slave, more devoted than devotion, until he has drawn you into his net . . . . and then he strangles you with a quiet and ferocious cynicism. Intelligent, he has learnt patience and duplicity with an astuteness, suppleness, and profound political skill. He can both wait and dissemble. He considers his the first among nations, and yet does not ignore that it is one of the last. He hates and despises all foreigners except the Englishman, who appears to him to be original and solid. There is nothing the Italian cannot put his hand to, but from the highest to the lowest he is a patriot. He is a revolutionist until he shall have cleansed Italian soil from a 'foreign tyranny;' but he is no Socialist, and if you speak to him of Communism and other advanced theories he shrugs his shoulders in the most eloquent manner, remarking that he 'leaves these bestialities to the French.' He is a conspirator above all things, and if he does not fire the four corners of the world with the revolutionary torch so that Italy may profit by it, it is from no lack of good intention."

Such have been the opinions expressed in the past

upon the Italian character by reputable authorities; it remains to be proved whether such descriptions are equally true of the Italians of to-day, and in what degree these peculiarities influence soldier-life and army efficiency.

While there are many undoubted home-truths in these short quotations, the Italian character is composed of so many dissimilar elements that to condense it into a single expression would be hopeless. "Les Italiens sont faux," wrote Napoleon, but mistaken patriotism often appears false when opposed to influences it finds no worthy means to counteract.

It seems certain that of late years the total emancipation of the country from former trammels has resulted in a great and corresponding increase in moral and material well-being, and that vices so marked and distinct under an era of tyranny are, and will be, gradually lost in an age of more enlightened rule.

So much for the general character; it is at least as important to draw some conclusions as to the actual character and military peculiarities of the common soldier.

The Italian infantry soldier is of small build, strong, healthy, and robust, with a firm step and well-knit limbs. He has many soldier-like virtues; sober and hard-working, he is easily disciplined, and thanks to this discipline is capable of accomplishing marches that would try the metal of the most celebrated light troops.

The more militant qualities of the *contadino* are fostered and developed by an excellent spirit of regimental comradeship. The Italian soldier of to-day will

be found in time of trial to be susceptible of great *élan* and dash in the attack, and of endurance and tenacity on the defence. He is essentially an infantry soldier, and rarely possesses that headlong, resistless bravery, combined with coolness of daring, that have given notoriety to great cavalry leaders of the past.

The Italians and the Russians are the most illiterate soldiery in Europe, and they are also the troops that require most leading, not from any want of animal courage, but simply because illiterate men seldom possess that power of initiative and self-dependence so necessary on the modern battle-field.

The merits of Italian officers are known to all. Brave and unassuming, they combine with great patriotism a quiet energy for work deserving of all praise.

For the preparation of young men for admittance into the military schools there are colleges at Naples, Milan, and Florence. The course lasts two years, the annual charge amounting to about 900 lire ; the studies embrace the usual classical and exact sciences.

The military school of the infantry and cavalry at Modena supplies the line with officers and prepares certain selected men for admittance to the higher schools. This course lasts three years and is a very complete one, for besides the usual military attainments taught at Sandhurst we find other subjects, such as French and Italian literature, modern history, military geography, natural history, landscape drawing, physics, chemistry, mineralogy, permanent fortification, etc. At the end of the course there is a thirty days' useful and practical instruction camp.

The course at the military academy of Turin for the artillery and engineers also lasts three years; officers chosen for it being among those who have completed one year's study at the Modena school, and who possess a knowledge of the subjects taught therein.

There is a model cavalry school at Pignerol for the further technical training of cavalry sub-lieutenants, and at Pavia a similar establishment, in order to instruct subaltern officers and under-officers in a uniform system of shooting, fencing, gymnastics, etc.

Sixty subalterns are annually admitted to the higher war school at Turin, equivalent to our staff college. The course lasts three years: at the end of it a *campagna logistica*, or staff tour, takes place, arms and baggage being carried, and long-range firing practised. Railway instruction is not the least useful training given to officers, about a hundred officers (in two courses), chosen from the active army and mobile militia, being selected for the purpose.

The director-general of transports has charge of the instruction, and there are usually four groups formed, at Turin, Bologna, Florence, and Naples, each group being under a staff instructor. The first part of the course is preparatory and theoretical; during the second period the garrison commandants have to supply men, horses, and guns, for entraining and detraining exercises, at the requisition of the instructor. Military discipline and order on the railways is materially assisted by these means.

For under-officers, corporals, and privates, there are both theoretical and practical schools of instruction.

In every regiment there is compulsory education for all non-commissioned ranks, as well as schools for training intelligent men in the duties of clerks, and in the practice of book and account keeping, for preparing able under-officers for higher schools, and for the special training of one-year volunteers. Lastly, there are regular regimental courses of instruction for officers in a variety of useful subjects. The annual march of instruction in the Italian army does not materially differ from that of other continental armies, looked at from a general point of view; neither do the regulations for infantry drill and field practice differ from generally accepted ideas.

Applied tactics appear to be properly understood, while the instruction and intrinsic worth of the cadres rest on solid foundations.

The battalion numbers 24 officers, and 812 men; the actual cadres are calculated on a total effective strength per company of 250 men, a number that will eventually be attained to when the financial condition of the country permits.

In the vexed question of battalion attack, the old system of four échelons, described at length in the work on the "Armed Strength of Italy," issued by the Intelligence Department, has been long since abolished, for it not only required good and numerous cadres to ensure order, even in peace time, but its *rôle* was very generally misunderstood.

The system of attack formations is now analogous to that of other European armies, three échelons corresponding to the chain, the support and the reserve

having been adopted, with a depth of 700 mètres at the first deployment from the chain to the reserve.

Three-fourths of the army are assembled in camps of instruction in the autumn, and complete their annual training by drill in rough ground and by long-range firing.

The infantry regiments are first drilled separately, then manœuvre by brigades, and for the last fifteen days of each period (about the 20th June to 20th July, 20th July to 20th August) with detachments of cavalry and artillery.

The corps manœuvres take place with reduced establishments, and last fifteen days, from about the 28th August to the 11th September. The cavalry independent manœuvres last about twenty-one days.

The general system of manœuvres has been pronounced indifferent by some foreign critics, since, say they, while these autumn peace campaigns are admittedly for the training, primarily, of superior officers, they are carried out in Italy after a too rigorous and obligatory programme of marches and lesser details, paralysing all initiative and leaving little latitude for the generals in command. This may in part be true, but no nation has yet succeeded in absolutely perfecting the difficult question of grand manœuvres. There have been few occasions where at times parade movements have not taken the place of free and natural tactical combinations, while the intendance rarely receives less than a month's notice of the locality of future operations.

Nothing is more misleading than to attempt to generalise on any such data. Actual war is the only

real and sure proof of the interior organisation and fighting capacities of an army.

The musketry regulations are practical, and differ from ours chiefly in the limit imposed upon individual firing. For all considerable distances there is a decided tendency to substitute mass firing, under the strict supervision of officers.

Regulations lay down the adoption of one, two, or three sights by a company or section firing at all distances over 800 yards, varying according to the distance, object, and strength of the detachment.

Eclipse targets have also been introduced, and field firing is extensively practised, while long-range shooting has been boldly taken up by mass and volley firing up to 1,200 yards.

One point the Italians show a peculiar attachment to is the *tiro ridotto* or gallery shooting, similar to the French *Tir dans les chambres*. General Primerano introduced this practice into the Italian army seven years ago, and since then it has steadily progressed in public estimation.

The patent consists of a false chamber and cartridge, the former consisting of a bronze or steel tube with a similar shape to the ordinary cartridge case, but slightly shorter and open at both extremities. This tube, introduced into the chamber, gives it a calibre suitable to the cartridge employed. The cartridge consists of a strong bronze case in which is placed a charge of 30 centigrammes of powder. The ball has the same calibre as the service ammunition and fits into the grooves of the rifle, but it is hollow, weighing only 8 grammes. Each

company receives 10 false chambers and 400 cartridges; the latter are refilled by men of the company as required, an allowance being given for the purpose. The lead is bought and carefully collected after firing.

The recruit commences a course of gallery shooting after the first seven lessons of aiming and before the regular target practice begins.

Under-officers and old soldiers who are bad shots are also put through a course, in each case consisting of eight lessons, four cartridges being allowed for each lesson.

The first four lessons are given at a range of 34 mètres with point-blank sight, a rest and in any military position (standing, kneeling, or lying down).

The last four are in the same positions at a range of 48 mètres with the 300 m. sight.

The target is an iron disc 0·50m. in diameter, painted white and supported by three iron legs. The bull's-eye is 0·10m. in diameter and revolves on a horizontal axis, so that each time it is hit it revolves. A regulation target 1·80m. square is sometimes placed behind the smaller one to catch the bullets. Each bull's-eye entitles the firer to 0·20 frs.; other regulations ensure a satisfactory system in detail. Soldiers are obliged to use their own rifles.

The practice takes place in corridors or galleries, under sheds, or against dead walls, all precautions being taken against accident.

The large number of territorial militia men equipped for service in Italy at the outset of hostilities will bring the peculiar tactics and methods of partisan warfare

prominently into notice during a campaign of which Italy is the theatre.

The size of modern armies precludes the idea that an invader will be able to exist solely by requisition save for a very limited time. Magazines and depôts will have to be formed, convoys will be many and frequent, and the openings for active partisans proportionately large. The Italian territorial troops, basing their operations upon the hill forts, or improvised works of defence on the Alps and the Apennines, will harass considerably the advance of a foe; but, as they are well armed, only partially organised as fighting units, and without uniform, they will constitute a dangerous element in the defences of the country. In case of ill-success it is scarcely possible to doubt that they will cast aside all distinguishing badges to escape capture; important international disputes may thus arise, and sanguinary reprisals take place.

There are two special causes which go to create distinctive systems of practical tactics in the Italian army. The first and most important of these consists in the existence of the Alpine zone, and of the various tactical questions which the employment of special troops for its defence brings into notice. The second cause has its origin in the inherent weakness of the cavalry arm, and in the means proposed to strengthen it. The organisation of the Alpine battalions has been already detailed, but the whole question of Italian defence of the Alpine zone is one of extreme interest, and well worthy of attention, not only from its inherent

importance and novelty, but from its tentative and as yet unproved character, and from its usefulness as a lesson to other countries with a mountain barrier to defend against possible aggression.

The general aspect of the question will be considered below; in the present chapter we shall endeavour to expose and dissect the individual character of the mountaineer recruit, and the tactical *rôle* of the frontier troops.

On this latter subject may be read with interest an original study, entitled, "The Alps and the Alpine Companies," by Lieut. Bertelli, of the 6th Alpine Battalion. The author writes warmly, fanatically, as befits his profession, but he supplies us with just those touches of light and shade that are absent from the writings of better-known men, but without which it is no easy matter to understand the subject in all its bearings.

After briefly describing the Alps and the motives which determined the formation of the Alpine troops, Lieut. Bertelli writes as follows of his Alpine recruits:

"Hunter, contrabandist, husbandman, shepherd, or charcoal-burner, our mountaineer stands above the middle height; he is strong-limbed, healthy, and robust. All the year round he is clad in rough and homely garments. Sober in everything, his food is of the simplest description; he drinks little wine, is enterprising, wide-awake, and economical.

"Naturally defiant and disdainful, he talks little; alone he does not feel solitude, in company he is rarely expansive or gay. He smokes little, and does not know

how to gamble. He is a faithful and sincere friend; seldom illiterate, he can keep count. He is not more religious than other people, but he attends church, where he finds the parson, a friend of his, and peasants, his neighbours; it is a place of meeting, of repose, and often of conversation.

"The mountaineer strides along like the bear, with a long, slow step; if he is in a hurry he slackens the pace, but walks for eight hours without stopping for a minute. The customs of Arcadia are his—to drink at the first spring, to lie down under the shade of the first tree, to milk the first cow he meets, even though she does not belong to him, well knowing that some one else will do the same by his.

"In each province he has a special nomenclature for his mountains. Interrogated after your fashion, he replies with a smile that appears to be one of compassion. Often, however, one finds in his replies such happy topographical expressions that they would make a Sironi, a Lavallée, or a Covino envious.

"The mountaineer has a respect for his superiors that one may vainly look for elsewhere; but this arises from his idea of their worth rather than of their position. He is very obedient—when it seems good to him.

"On the mountain side his eye rarely deceives him; he never slips or makes a false step. He does not attack obstacles like the bersaglieri; like Napoleon, he turns them.

"On the rocks his heavy shoes tread as light as those of a *première danseuse*, and on the snows they appear to spread out so as not to sink in.

"On frozen ground he skates along like a Viennese on the Danube; on the rocks he makes sure of four points, two for his hands and two for his feet, and then begins to whistle, like the safety-valve of an engine, to let his exuberant spirits escape. He knows the crevasses, and what to think of a rock that has been disturbed; he knows the nature of the vegetation which covers certain inclined slopes, and what a misplaced step will cost him on it. The mountaineer never loses his way even in hills he is unaccustomed to. At one turning he goes to the right, at another to the left; if there are three paths he chooses the centre one without stopping for a second, without even turning his head, exactly as if there were a sign-post. Ask him the reason and he will answer you with his cunning smile: 'I go to the right because that track on the left, though broader and easier, only leads to a spring close by.' 'You know these parts, then?' 'No, signor, I see certain marks on the ground which prove that flocks alone go that way to water.' You ask him again, at another turning, and he replies: 'I go to the left because that right-hand track only leads to a charcoal-burner's hut; those holes which you see on the path are made by the points of the sticks those men carry.'

"The most precious and admirable organ of the mountaineer is his eye; it is piercing, unenthusiastic, but far-seeing and sure. The contemplation of panoramas is not his forte; for him perspective, foreshortening, shades, half-tints, sunrises, the imposing spectacle of erratic masses of rock, of impetuous torrents, of brilliant glaciers—I do not say these things do not exist

for him, but it is just because he has had them before his eyes from the day he was born, that from the age of twenty he no longer thinks about them. His attention is entirely absorbed by the road he is travelling, and by the discovery of the smallest changes on the opposite side of the valley.

"A thousand yards off a slight variation in the green tint of the vegetation reveals a spring to him; some scraps of brushwood here and there disclose a mule track; if a forest terminates abruptly he recognises at once a precipice or a crevasse.

"If a voice, repeated by many an echo, reaches his ear, your mountaineer, after simply turning his head, will tell you at once where that voice comes from; you would never make out. From the noise of a torrent he will know, without seeing it, whether it is fordable or not.

"The least cloud of smoke will teach him whether it is a charcoal kiln or a hut on fire. Ten paces from you he will say whether you have the bump of alpinism or not.

"The art of finding his way is innate in him; in his nervous system there is, so to speak, at once the compass, the barometer, and the thermometer.

"'It will rain up there,' he says, and it rains sure enough. 'It will snow over there,' and it snows. 'It is raining hard over there, but we shall escape it;' ask him why and he replies, 'Don't you feel where the wind comes from?'

"The sun is shining brightly and the sky is clear. 'Signor, in an hour the mist will be upon us.' 'Im-

possible.' 'No, no, I caught a whiff of it rising from the valley.' An hour afterwards you will be surrounded by so thick a mist that you will not be able to see your own feet.

"'Tell me, how long shall I take to reach that hill-top?' 'Three hours.' 'What, three hours? I shall do it easily in two.' 'Then you will be a good walker,' he replies with the same mocking smile. Try and do it, and you will not reach the top in five hours.

"The mountaineer at the same time has many negative qualities. He is particularly dirty in his person, and one may say the same for his household, his habits and his customs. He is the most obstinate of people, and custom is so rooted in him that he will permit neither counsel, observations, advice, nor innovations. He is superstitious: you may strangle him before you can make him work on a feast day. He is methodical to a degree. Supposing in a distance of five hours' march there are three halts, usually made at places where shade and water are found, if a hundred mountaineers pass by that road they will stop at those three places. If they are thirsty they will drink any kind of water; lecture them about drinking water and of diseases arising from drinking bad water, and they will laugh in your face.

"Suggest that it would be best to take such and such a direction; not a bit of it, they prefer another, and nothing can shake their opinion. If you find their patois strange they will send you to the devil with your grammar, and rather than change theirs they will be silent. Accustomed to tranquility and isolation, they

do not dread solitude, but an uproar is hateful to them; not even chains would keep them at Naples; the façade of their chapel is not a whit inferior to that of Milan Cathedral; if they are strangers in a foreign land they will take no trouble to make acquaintances. Their valley is their Italy, their country is the hovel in which they were born. They are neither poets nor painters, and are absolutely wanting in enthusiasm. Their nature is as rough as the cloak that covers them; their minds, like their mountain slopes, are but little cultivated; yet, with all this, the mountaineer is the best recruit of the army.

"It would be a mistake to imagine that all the recruits of an Alpine company are mountaineers such as we have depicted, or that the mission of the army consists alone in making them good Alpine soldiers. The hunters, contrabandists, and a large number of the shepherds and charcoal-burners, are men of a mature age. If the youths are excluded, who grow up in the towns and villages of the valleys, the carpenters, shoemakers, bakers, blacksmiths, masons, and those who go to Turkey, Germany, Switzerland, and France, to work on the railways and in the mines during the summer, and if to these are added the youths who are apprenticed in towns as workmen, waiters, and travelling merchants, etc., there remain but few who, at the annual levy, bring the custom of a rough mountain life as their patrimony to military alpinism. At all events, one may say of our recruits that they are accustomed to the varied temperature of the mountains, and the dialect of the country. If they have not the step, eye, and

character of the true mountaineer, at all events they are capable of quickly acquiring them.

"Those who imagine that we possess fine, well-formed mountaineers by the simple annual levy of the recruits of our valleys will also probably say that in case of need sailors will at once be found by recruiting in our maritime regions. To make the former mountaineers there is only a single means, to bring them to the mountains and make them march and march and march. No one has ever written a *vade mecum*, nor a theory to teach recruits to become mountaineers; happy inspiration, which has spared many fatigues whose results would have been vain. There is only one means for making a man a sailor: let him sail three times round the world as a cabin-boy in a ship of the State. In the same way, to make a man a mountaineer let him live for three years from 2,000 to 4,000 mètres above sea-level, and let him walk for eight hours in the twenty-four.

"Theorists on the mountain side are not worth a brass farthing.

"A mountaineer, even if he is illiterate, requires good lungs, good legs, a good eye, and perfect coolness; a theorist and a scribbler requires table, pens, paper, and ink; no matter if he limps, is short-sighted, or even consumptive, no harm is done to the style and editing.

"In order to economise time, we have to form the mountaineer and the Alpine soldier at one and the same time. The first part of the instruction is physically fatiguing and nothing more, but to make a man into

an Alpine soldier is an arduous business, little understood by those who have not attempted the task.

"All military writers are in perfect accord that operations of war must, to be well conducted, be adapted to the ground on which they are to be executed. It is not only in Italy that a mountain district is too little studied in detail. If one glances through military histories, here and there one will find bold marches, brilliant combats, heroic defences, but always very insignificant results.

"Von Kühne, a distinguished military writer, assures us that the generally small results of mountain engagements are the peculiar characteristics of mountain warfare. If I may be allowed, I will add another cause of these results; it consists in the absence of practice of the ground on the part of the combatants, and also, as regards the leaders, in the absence of that concert which must arise in mountain warfare, not from verbal or written orders every five minutes from the general, but from an exact horo-hydrographic knowledge of the theatre of war.

"With this intimate knowledge alone one can at once conduct the forces under one's command to a point in a certain zone which one unhesitatingly pronounces to be the future decisive point of the fight. An energetic subaltern leader, possessing the true mountaineering *coup-d'œil*, will always know this decisive point, and it will become the lamp to light the road.

"Happily for us, our enemies in the past have had but few special troops for mountain warfare, otherwise

Von Kühne might have had to narrate results anything but microscopic. The few and far-famed Austrian jägers of the Tyrol will say that if our poor volunteers were led by chiefs as generous as they were courageous and indefatigable, still they were not mountaineers, and were ignorant of the most elementary tactics of mountain fighting.

"At this period the instruction given to troops destined to fight in the great theatres of the Adige and the Po was altogether unsuited to combats in the narrow gorges of the Alps, a new ground entirely, where orientation, the service of advanced posts, musketry, marches, and fighting formations had not any connection with this instruction."

In considering this question it must be remembered that the value of a determined Alpine defence has only been understood and practised in Italy of late years, and that the possibility of any such action being effective results in great part from the huge size of modern armies, rendering possible and advisable to-day many steps that have been wisely condemned in the past. The present system results in the Alpine battalions, or local groups, assuming practically the duties performed by the cavalry divisions in other continental armies, namely, of covering the mobilisation and screening the concentration of the army; but with this difference, that on account of the inherent strength of the Alpine zone they form not only the line of observation but also the line of primary resistance.

The organisation of the Alpine troops has been already exposed in detail; the salient points consist in:

(1) Regional recruiting.

(2) Autonomy of the companies, and their permanent maintenance on a war footing, 250 strong.

(3) The formation of special groups or sections by each company with its corresponding reserve and militia companies.

(4) Artillery support in the proportion of 3 guns per 1,000 combatants.

Italian commanders will no longer find their plans stultified because even the dash of the bersaglieri is impotent against the natural difficulties of a mountain district; no longer will distances be miscalculated, the localities unknown, the dialect as great a hindrance as for the enemy, and the troops practically incapacitated from energetically fulfilling the *rôle* assigned to them.

In war time is golden; a tenacious resistance in the Alpine zone will result in so much the more time lost to an aggressor at the very moment he can least afford it.

The defensive plans of the Italian general staff are experimented by the Alpine battalions incessantly; enterprises appearing rash in design and difficult in execution become possible by an accurate knowledge of every track on the mountain side, and by march-manœuvres at all seasons of the year.

The drill and theoretical instruction of the Alpine battalions take place during the winter months, when the corps are massed at their central stations, in rear of their special sections of defence; without this step there would be a serious want of *ensemble* in the march of instruction, discipline would suffer from continued and

demoralising detachment work, and the status of the force would be greatly lowered.

With the beginning of summer the hill stations are again occupied, while for six weeks the troops are actually in possession of the crest line of the Alps, exploring every track and every cranny, experimenting all kinds of manœuvres, calculating distances, sketching plans of ground, and rectifying local defensive schemes.

Obstacles calculated to oppose the enemy and hinder his freedom of movement are prepared beforehand, tracks are marked out for the assistance of supplementary offensive action, points are determined where the destruction of roads, bridges, tunnels, etc., may be effected with facility, while accurate estimates are made of the time and labour these and other operations would require.

The plans for Alpine defence may be generally said to allow a barrier fort to every main road or pass through the mountains, but these works form by no means the extreme expression of even purely passive defence calculated upon. The hill forts are the main pivots and points of support for the field manœuvres of the Alpine troops, but they equally form so many magazines, temporarily secured from hostile attack, and possessing reserve supplies of ammunition and material of war stored in readiness for emergencies.

On almost every great road leading across the Alps —and this is particularly the case on the French frontier —there are found one, two, and often three lines of defence distinctly marked, but the hill forts are the only set points by which an adversary can prejudge

defensive action without preliminary reconnaissance in force. From the extensive character of the schemes for defence, it is certain that action based on information concerning the position and passive resistance of these barrier forts alone would prove uncertain and dangerous.

The forts themselves are solidly constructed and skilfully placed enough, although their position, as regards the majority of the works, was determined before the introduction of rifled cannon; again, they possess the usual defect inherent to a greater or less extent in all hill works, namely, that they are more or less commanded by other heights, and that their power for resistance depends to a great extent on the inaccessibility of these heights.

It is here that the value of the Alpine troops first appears, affording on the extreme frontier line that mobile defence which is the soul of resistance.

Not only do they prepare obstacles to an attack, but they also determine suitable points for supplementary batteries, for shelter pits and trenches, for block houses, field magazines, and more extensive works.

But, given the constant state of readiness for war of the two great military states bordering upon Italy, it seems more than probable that the first shots will be fired at the very hour of the declaration of war; it would be a mistake, therefore, to calculate upon the services or occupy the time of the Alpine troops in digging, mining, or road-making, or in any duties but the needful active defence.

Arrangements have therefore been made so that an engineer commandant with civilian labourers in the required numbers may be immediately despatched to each section of Alpine defence to assist in hardening the line of resistance. The actual work of exploding mines, destroying tunnels, mountain tracks, etc., is but the work of a short time when the necessity has been foreseen and preparations completed, but the construction of serious works of defence, on which the Alpine troops greatly rely for material assistance when the attack begins, is a question of more or less time and labour according to their extent and development.

The danger for Italy consists, then, in the probability of an attempt being instantaneously made by the enemy, at the very instant of the proclamation of hostilities, to push rapidly forward heavy columns at various points, seizing, if practicable, at all events one important pass or commanding position, and by rapidly entrenching himself there to disconcert and disconnect Italian defensive schemes.

Such a possibility must certainly be faced, given the proximity of the line of observation to the line of resistance.

This seems the main defect of Alpine defence, but it is more so in appearance than in reality; for the readiness of the Alpine battalions to take the field, the immediate concentration of the infantry regiments on the threatened frontier, the absence, particularly as regards France, of any special troops versed in mountain training, and lastly, the instinct of moral superiority which will be created by these various factors may assist

in maintaining the equilibrium, at all events, during the critical days of mobilisation.

There seems, again, to be no doubt that the Italians will push forward their line of observation wherever possible across the frontier, in order to disturb the assailant's preparations and give time to prepare a warm reception in rear on his advance.

The military opinions of France and Italy at once clash over this frontier question. It is absurd to suppose, say the French in effect, that a long and by no means deep mountain zone can be defended against the combined and simultaneous attacks of our superior columns of invasion ; a single track left unguarded may result in the downfall of the whole edifice so laboriously constructed.

But the Italians by no means admit the justness of this view of the question, and assert, on the contrary, that conditions of modern warfare, the huge size of the armies of to-day, the difficulty in the deployment of heavy columns in the Alps, the preparations made for resistance on the frontier line, and lastly the perfect knowledge obtained of every stick and stone in the hills will result in a strong resistance little calculated upon by their impetuous neighbours.

Theoretically, the assailant of a mountain chain has the advantage, but in the case in point there is much to recommend the Italian system, which is the offspring of modern changes in army organisation and of the proved and evident necessities of the circumstances.

Of the further instruction of the Alpinists musketry forms a peculiar and important feature.

Bad shots are only an encumbrance in mountain warfare; the training, the physical development of the Italian mountain recruits, by disciplining the body and giving them a steady hand and a clear eye—*mens sana in corpore sano*—greatly assists in the formation of a splendid body of marksmen; constant practice, with an unstinted supply of cartridges, does the rest.

The preliminary course of musketry consists in the usual target practice at the central or winter stations in rear of the Alps, where instruction is in particular carefully given in firing up and down inclined ranges. By far the most useful course of instruction takes place, however, in the mountains, where field-firing is extensively practised on common-sense principles, unhampered by any unwise and obstructive regulations, and instances of actual hill fighting creditably approximated.

A level range for fire is seldom enough found in an ordinary campaign; in mountain warfare it does not occur once in a hundred times. A soldier who has all his life been wearily plodding through the round of annual practice at a level range is altogether out of his element in the hills. One might as well expect a man from the plains to be a born mountaineer by the mere fact of his being employed in hill fighting. In a plain country it is a question of the more or less skilful deployment, at the right place and at the right time, of the greatest number of tens of thousands of armed men, of mass firing at almost invisible ranges, of huge concentrated batteries, of the speed and shock of mounted men. All these factors are absent in hill fighting.

There is only room for a certain calculated deployment at certain calculated points. Successes are won by small and dashing bodies of well-trained riflemen. The normal formation is that of skirmishers; marches are seldom possible save in single file or on a front of two deep. The enemy appears above or below, seldom on a level. Cover is to be found everywhere, and a man who cannot hit a mark the size of a man's head and shoulders every other shot, at 250 yards, is worthless and more than worthless, for double the effect would be produced by a capable shot in his place.

Charges of cavalry, deployment of guns, square formations are not known in the hills; other things being equal, the best shooting troops accustomed to mountain work are certain of victory.

The Tyrolese riflemen have not won such a high and well-merited reputation by expending fifty cartridges to kill one man, but by laying three adversaries low with five shots. Fire such as this—we have experienced it in the Boer affairs—has a moral and material effect demoralising in the extreme.

Long-range fire is not so fanatically taken up by the Alpinists as by their French neighbours. They have justly assumed that the important ranges for mountain warfare lie between 100 and 500 yards.

In the question of marches, a peculiarity of the Alpine troops is that, like all true mountaineers, they count the distance by time rather than by metric measure. Thus for them 15 kilos. is a march of three hours; 25 kilos., five hours; 35 kilos., seven hours, and so on.

As a specimen of the marching prowess of the

Alpine troops, the following instance—by no means an exceptional case—deserves notice:

An Alpine company, 130 strong, started in marching order from a point in the hills 700 feet above sea-level at 4 a.m. one morning. Marching through knee-deep snow for eight hours, they reached a point 3,000 feet above sea-level, and arrived at the point of departure again at 6 p.m., with only a halt of two hours during the day, and without a single man falling out or going sick next day. Soldiers will appreciate the intrinsic excellence of troops with whom such deeds are possible in peace time.

Another Alpine company marched from Aprica to Edola, sixteen kilos., in an hour and fifty-four minutes; as a rule, however, the Alpine troops make no pretence to *fare bersaglieri.*

Another peculiarity in the annual march-manœuvres is the special system of orientation taught, well worthy of imitation.

An officer is pointing out, say to an orderly, a road to be traversed. He says: "Go down the banks of this torrent till you reach its second affluent on the left bank, follow this up-stream until you find the first stream on the right bank, follow this up again to its fountain-head near a group of five fir-trees, and there you will find the signalling station." If the same man were told to march for two hours in a S.S.W. direction, then for half-an-hour to the W., and lastly for twenty minutes to the W.S.W., the only means for finding him again would be an insertion in the local papers, or a polite note to the enemy.

The fundamental regulations on this subject are based upon the invariable relations existing between the horography and hydrography of all countries.

Again, as regards tactics, there is no such thing as a hard-and-fast fixed distance between posts or échelons of bodies of troops on the move; it is a matter entirely dependent upon local conditions. It may, however, be remarked that rarely more than one-tenth of an available force is employed on outpost work; this is only rendered possible by an accurate knowledge of the ground.

The artillery of an Italian army corps is in the proportion of $2\frac{2}{3}$ guns per 1,000 combatants. This may appear insufficient in comparison with the proportion allowed in other European armies; but it is only so in appearance, for the enclosed nature of the ground greatly diminishes the *rôle* of artillery and seldom permits of those imposing masses of guns, of so great an importance elsewhere.

Long trains of artillery material and ammunition will prove a source of actual embarrassment to an army operating in the country.

With regard to fortress artillery, the sixty companies of this arm of the service barely suffice for one-third of the fifty-two strong places comprehended in the Italian defensive schemes. This is, no doubt, a vice in detail; but only a double attack would render the position at all critical.

There are three distinct theatres of war in Italy —the North-Western, the North-Eastern, and the Peninsula. If either theatre is directly threatened, a

large proportion of the fortress artillerymen can be withdrawn from the other fortresses outside the zone of action.

The artillery tactics do not call for any remark beyond what has already been stated with regard to material and power of guns.

The Italian artillery is a particularly fine body of men, and possess a fair technical and practical training.

Italy is not a country for horsemen; economical considerations have also had their share in reducing the cavalry establishment to a low figure; so that once an enemy has the mountain girdle in his possession, and can flood the country with his squadrons, some danger may arise for Italy.

On the French frontier there is a belt of low-lying ground near the mountains favourable for cavalry action; but as it is probable that, once a pass has been seized, infantry will be first pushed forward, Italy will remain superior in the cavalry arm until the tide of battle is stemmed and rolls back towards Alexandria.

Pushed back from the Alps, the Italian army would find itself in a country eminently unsuitable for cavalry action; but on the other hand the nature of the cultivation favours surprises, and results may still be obtainable by dashing and concentrated action.

On the North-Eastern frontier the case is altogether different. Here, in Venetia, is a field for the exercise of every combination suggested by genius to a cavalry leader.

We shall see presently that the frontier line in this

direction is very indefensible, and that it is possible that Venetia may fall to the enemy without a blow.

This would be unfortunate for Italy, not only from the bad moral effect that a loss of territory naturally produces upon those who cannot understand the necessities of strategy, but also because the superior Austrian cavalry would at once have a fair field for their peculiar excellence.

Austro-Hungary can put in the field 286 squadrons in all, 40 of these being Hungarian honveds. Twenty-one regiments are composed of 6 squadrons, the remaining 10 of 4 squadrons each. Calculating 29 regiments as normally divided between the army corps, there still remain sufficient horsemen to form 5 independent cavalry divisions of 24 squadrons each.

It need scarcely be pointed out how very superior such a force would be to the weak squadrons of Italy, while the pre-eminence of the Austrian cavalry, a matter innate with their organisation, has been often proved. Mounted sappers, their instruction and equipment, form one of the most burning questions deservedly well-studied by European cavalry leaders and organisers. In practice, Austria has supplied the best lessons of the advantages to be derived from an extensive use of this valuable service. For the work of the Italian cavalry *zappatori*, subalterns and under-officers are given a thorough training in special schools and in their turn instruct the men of their regiments.

In each squadron there are selected for sapper duties 1 corporal and 8 men; each man must have at least 6 months' service and have been apprenticed in civil

life to some useful trade. In all regiments the armament is identical, consisting of a sabre and revolver only.

The tools carried are classified as ordinary and special. The ordinary equipment consists of an axe each and either a hatchet or a pick; the corporal having a hand-saw, three augers and a small knife-saw for severing wires.

The tools have a solid leather covering; the axes are slung on the men's shoulders, the picks and hatchets are carried in the sapper buckets attached to the right side of the saddle and balance the sabre suspended on the left side. The weight of the pick is 4·25 kilogs., and of the hatchet 4·60 kilogs. In the special equipment each man carries an axe, 2 carry picks, 2 hatchets and 4 spades. The corporal sapper has the charge of explosive substances, consisting of 4 250-grs. dynamite cartridges, 8 25-grs. cartridges and 15 fuzes. Two of the men also carry the "Samuel" key for loosening or tightening screws and bolts, the chief object of the special equipment consisting in the hasty demolition and repair of railway lines and other works of art.

The course of instruction gone through embraces a great variety of subjects, and renders the men capable of overcoming any ordinary difficulties during a campaign.

The course includes: The rapid construction of field works, the defence of posts, the destruction of the enemy's works and ordnance, the preparatory duties of infantry in siege warfare, the various methods of knot and rope tying, of raft-making and temporary bridging, the embarkation of troops in boats and rafts, the passage

of rivers by swimming, fording, or on the ice, the simplest methods of crossing ditches, dykes, and other obstacles on a march, the hasty repair of carts and carriages slightly damaged, and lastly the many duties connected with encampments. A general knowledge of these subjects ensures that the cavalry of Italy will not be helpless even though overmatched in numbers.

The system in vogue of packing and carrying the tools is practical and serviceable, and the freedom of movement of man and horse is little if at all impaired by the extra weight of the impedimenta.

If, however, Italy may rest satisfied with the competence of her cavalry sappers it cannot be equally affirmed that the system of tactics employed is suitable to the conditions of modern cavalry action. We do not speak of grand charges, which so seldom take place, or of shocks between two great contending masses of horsemen; on these subjects there is but little disagreement; it is a question of numbers, of a rapid *coup d'œil militaire* on the part of the leaders and of the presence or absence of the "last reserve."

Nor need we speak of the open order attack on guns, nor of the caution shown in attacking unbroken infantry. These necessities are universally admitted. It is in the question of dismounted action that criticism is required, and it is altogether irrelevant to object that some other nations find it equally inconvenient to grasp this objectionable nettle.

And yet it is an absolute necessity. Cavalry leaders, lovers of their arm and their profession, must look this question calmly in the face, for it is chiefly because

of their chivalrous dislike to ever abandon the cold steel for the more deadly rifle that the question of mounted infantry, of the "reduction of cavalry, that expensive arm, within more reasonable limits," has ever been heard of.

It is a matter that does not admit of doubt that as long as rapidity, boldness, and dash are active agents in war, cavalry will retain its importance—but on one condition, that it keeps pace with the times.

Let us see what steps have been taken in Italy to render the cavalry independent of the nursing of an infantry support.

In the 22 cavalry regiments all the men are armed with sabre and carbine; 10 regiments have the lance in addition, while all under-officers are armed with the revolver.

The carbine has a bayonet, which, when not in use, is placed point downwards in the barrel.

Each trooper has 5 packets of cartridges in war time, each packet containing 8 rounds, or 40 in all; under-officers have 3 packets of revolver cartridges, 6 rounds in each packet, or 18 in all. The carbine is slung on the trooper's back, and this method has been proved more convenient than the bucket.

The sabre being attached to the saddle, the trooper finds himself in no case helpless and disarmed, for if thrown he has still his carbine and cartridges.

A cavalry force, advancing with the intention of resorting to dismounted action, is numbered off in sections of fours; during the advance the files open out to half intervals, so that no ulterior formation

may be required. Nos. 3 in each section remain mounted, the remainder dismount, hand their reins to the mounted men, and form up in single rank twenty paces in front or to the flank of the led horses. The skirmishing line is formed into groups of twelve; the support, if there is one, is formed in single rank. There are no instructions for the manœuvring of led horses.

It is laid down in theory and practised in the field that in dismounting, one-half the force, or in very large bodies one-fourth, must remain mounted, while of the dismounted portion never less than one-fourth hold the horses. Take, as an instance of the effect of this rule, the dismounted strength of a cavalry regiment 500 strong. Deduct 10 per cent., absent from various causes, and there remain 450; deduct the 54 sappers, and there remain 396. One-half of this number remains mounted, and of the remaining 198 one-fourth hold the horses, leaving but 149 available for the work in hand!

In Italy there is every inducement for cavalry to perfect the methods of dismounted action. The mounted force in itself is small; the country is generally unsuited to shock tactics pure and simple. Light troops, even unsupported, will often be able to cling tenaciously to advanced positions, and resist successfully all half-hearted attempts to dislodge them, on account of the favourable nature of the ground for minor or local defence. This being the case, it is difficult to understand the anomalous character of dismounted action in the cavalry arm, and it is only

to be accounted for on the supposition that Italian tactics are so entirely imitative that they overlook much that should be initiated and regulated from a purely subjective point of view. Even if it is admitted that elsewhere regulations are very similar for dismounted action, does that palliate this chivalrous anachronism? Does it not rather prove all the more that a large portion of the cavalry of Europe is still so religiously wedded to by-gone superstitions that it prefers to set before its eyes those glorious moments of Reichshoffen, of Mars-la-Tour, and of Balaklava, to the exclusion of those less brilliant, perhaps, but more useful feats of arms that have distinctly shown that a new era is approaching?

It could be easily shown how some European cavalry, notably that of Germany, while in no way overlooking the true weapon of all cavalry worth its salt, the sabre, still do not shut their eyes to facts, and strive to perfect dismounted action by every means in their power, for the very reason that their peculiar aptitudes may find place and power to add fresh lustre to their arms.

For the true cavalry leader every mission given must be carried out. Is it possible on horseback? Then, to horse, draw swords, forward! Is it impossible on horseback? Then, dismount, and in spite of all let us open the way by our fire!

It is just this double power of the rifle and the horse that will always cause cavalry to be the arm above all others of independence and initiative, and the effect will be indisputable if its causes are understood.

The distinctive characteristic of cavalry both mounted

and on foot is the offensive, the tactic of shock, and this quality must be maintained. Take, however, the case in point of the Italian regiment dismounted. Is the maximum of offensive action obtained by dismounting 149 men out of 450 ? It is absurd to suppose so.

Cavalry checked in reconnoitring or other advanced duties would probably be opposed by infantry detachments of about the strength of one company, or 250 men. Deduct the usual allowance for non-effectives during a campaign and there remain about 200. These 200 men, then, instead of being surrounded and attacked and their position rushed by at least 400 dismounted horsemen, would only have to resist the comparatively feeble efforts of 149 men.

It is in a case like this where we can perceive the evil results of certain hard-and-fast regulations, by taking the premisses and arguing them out to their logical consequences.

Of what use is the mounted support? Absolutely none.

A few videttes on the flanks of the attack are all that are required, for time is then given for withdrawal should fresh infantry appear.

Supposing there is a sudden onslaught of cavalry, which is best to withstand the shock, the small mounted support or an equal number of well-posted dismounted men? We have only to remember that 25 well-posted infantry have nothing to fear from 100 horsemen, and the question is answered.

The reservation of the mounted support in the hands of the senior officer at once shows the prevalence of the

love for the cold steel, regardless of circumstances, while it also serves to expose the inherent viciousness of the system, for it is in no way defensible.

It is more than probable that if the full weight of the regiment were thrown into the main attack the desired success would be achieved, and that immediately.

The second peculiar system of tactics to be noticed has reference to the bersaglieri and the support they are likely to afford the weak cavalry force.

It has been already pointed out that the bersaglieri form one-eighth of the total infantry force; on a war footing the regiment numbers 100 officers and 3,270 men. It is unnecessary to add that the bersaglieri are the crack corps of the Italian army.

In times gone by the best regiments have been formed by solid battalions of selected giants, such as Frederick's Grenadiers, Napoleon's Old Guard, and many others famed in history. They formed a special reserve of trustworthy troops under the immediate command of the General-in-chief, and when the opportunity or necessity offered, the steady, steel-tipped column was hurled against the foe with an almost certain success.

The inherent qualities of these men were physical size and strength, long service, perfect and rigid steadiness in manœuvring before the enemy, and a feeling of self-reliance and invincibility engendered by these very qualities, and by the character of the men appointed to command them.

But modern warfare has changed the *rôle* of the grenadier no less than that of the steel-clad cuirassier.

Steadiness in manœuvring and pre-eminence in

discipline are influences which will never fail to distinguish the best regiments, but in the field there are other qualities required besides these, and without them the best-disciplined veterans will fail to retain their place and rank. These qualities are mobility, celerity in manœuvring, changing front, extending and advancing, a perfect fire discipline, a knowledge of distances and of taking cover, and lastly, readiness with the rifle and skill in its use.

The traditions of rifle regiments eminently fit them for these important duties, and the result is apparent in the fact that riflemen, jägers, *chasseurs-à-pied*, and bersaglieri are rapidly usurping the proud position formerly held by more solid and immovable troops.

The idea held by some that because an identical rifle is in the hands of each foot-soldier that therefore regiments of the line, light infantry, and rifle regiments must be all reduced to the same dead level of mobility, or the reverse, is not a just one, neither is it adhered to by those in authority in the great military states of Europe.

If the rifle cannot be improved—an absurd assumption—it is at all events different with the raw material —the recruit.

The standard can be raised, the skill of the men can be improved, and a worthy example formed for the remainder of the service. Such anomalies as sharpshooters, and free companies, formed during hostilities, will not be required, for if suitable action is taken by those in power the raw material will soon be formed, fashioned, and ready for work.

The bayonet is a faithful friend in need; but the development of fire action is of prime necessity. To admit a due extension of the admirable qualities of mobility and good shooting it is indispensable for rifle regiments to be given the fullest latitude in the selection of recruits and the dismissal of useless men.

In the case of the bersaglieri, we have seen that the selection of recruits ensures a supply of men between 1·62m. and 1·75m. in height, of large chest measurement, of robust constitutions, and with an early training entitling them to join a select corps; more than this, an extra allowance of 7 centimes a day is given to these valuable men, poor though the country is.

To see a regiment come dashing by cannot fail to make the most unimpressionable enthusiastic.

The pace is 0·86m. and the cadence 120 to the minute. Almost incredible stories are told of the distances traversed by bersaglieri battalions during a few hours, both in peace and war.

On one occasion General della Marmora, the father of the bersaglieri, mounted on a celebrated Arab charger, drew up a battalion to salute the late King Victor Emmanuel on his leaving Genoa.

The king travelled 40 miles with English post-horses, changing horses four times. At the end of his journey what was his surprise to find an almost unrecognisable battalion of travel-stained bersaglieri again drawn up to receive him, with General della Marmora on the same favourite white Arab at their head.

They were the same troops, who had travelled at great speed over hills and valleys, fording rivers and

streams, and taking a direct line to the town the king was making for by the high road.

General della Marmora loved to recount this episode, and how that, after it, he had his own way in all questions connected with his favourite troops.

Continued, real and rigorous training to this pace has made the bersaglieri the best marching light troops in Europe.

In Germany, Austria, and France, the rifle regiments are equally selected men—gamekeepers, hunters, foresters, and others being told off to the corps.

If there is not quite the same tradition as in the bersaglieri, still these jägers and *chasseurs-à-pied* form select bodies of light troops of very considerable merit.

It has been declared that German opinion is against the formation of rifle regiments, but the reverse is the truth. German military administrators have not seen their way of late years to increase the rifle battalions of the army, but the cause is simple. The material from which these excellent bodies of troops are formed is neither large, nor increasing, nor capable of development, nor of furnishing more than a comparatively limited quota for army service. If the rifle battalions are to be increased it must be at the expense of their peculiar excellences. Germany has wisely preferred to maintain them unimpaired.

Italy has properly decided that calculations by tape and measure give only some of the outward, and often misleading, desiderata for a rifleman, and that a man with the early training of a gillie, a forester, or a gamekeeper, with a clear eye, a robust constitution, and a

consequent capacity for marching and shooting, is worth three other men taken at hazard from the ranks of the recruits.

The nature of the country is eminently suitable for dashing and mobile troops.

On service the bersaglieri are either kept in hand as a reserve for emergencies, under the direct control of the corps commandant, or are used to occupy special points in the line of battle, to perform rapid flank marches, or to support cavalry in independent far-reaching action.

For the latter duty there are special instructions. The Italian cavalry is weak, but when touch is obtained with the hostile cavalry, the *rôle* to be played by light infantry corps, capable of long and rapid marches, and still able to come into line at the end of them, is a great one, and capable of much development.

During the cavalry manœuvres, bersaglieri battalions are invariably attached to the opposing sides. At the shortest notice they have often appeared at unexpected points many miles away from the positions they were supposed to occupy, and in spite of all difficulties have often rendered great and signal services to the mounted branch of the service.

CHAPTER VII.

RAILWAYS AND FORTRESSES.

Length of Lines open for Traffic—Recent Additions to the Network—New Lines under Construction—Military Surveillance of the Lines—Railway Instruction—The Railway Brigade—Railways—Mobilisation—Interior Lines—Defects of Construction—The Military and Commercial Question—Friction during the First Days of Mobilisation—Labours of the Commissions of 1871 and 1879—Single *v.* Double Lines—Stations—Rolling Stock—Available Material compared with that of Other States—Chief Requirements of the Existing System—Maritime Transport—Fortress Defence—Abandoned Condition of the Older Fortresses—The Barrier Forts—Parliamentary Credits for Works of Defence—Unfortunate Result of the Vote of December, 1881—Description of the Barrier Forts on the French Frontier—On the Ligurian Riviera—On the Swiss Frontier—Facing the Tyrol—In Venetia—True Worth of the "Strong Places" of Italy—Alexandria—Casale—Verona—Peschiera—Legnago—Venice—Pavia—Cremona—Pizzeghettone—Mantua—Plaisenza—Genoa—Spezia—Bologna—Ancona—Gaëte—Capua—Taranto—Monte-Argentaro—Civita-Vecchia—Elba—Sardinia—Sicily—Rome—Details of Works Completed—Strength of the Capital—Weak Points—Garrison—The Three Distinct Types of Fortification in Italy—Places of Refuge—Antique Fortresses—Probable Attack by Rifled Cannon—Curved Breaching Fire—False Notions of the *rôle* of Great Fortresses—Infantry Attack on Modern Entrenchments—Conclusions on the Defensive System of Italy.

The network of Italian railways planned and constructed before the year 1875, was mainly due to private enterprise, and is still managed by private companies.

The first line of rail was opened in 1839, but no great strides were made until 1861 ; between this date and the year 1866 nearly 3,000 kilos. were opened for traffic, and during the six subsequent years, from 1866 to 1872, an additional length of 1,663 kilos. was constructed.

The total length now in working order is about 9,500 kilos., two-thirds of the whole being in the hands of the Alta Italia Company, the remainder being divided between the Roman, Southern, Sicilian, and Sardinian Companies. Recently, railway construction has been undertaken by the State on a very extensive and costly scale, in order to more rapidly extend the system, as well as to establish future lines more in consonance with the general, as opposed to the local interests of the country.

In 1875, the Italian portion of the South-Austrian and Lombardo-Venetian Railway, 1,444 kilos. in all, was purchased by the Government, while in 1878 a bill was passed for the construction of 4,000 kilos. in addition in order to complete the lines required in this province. The construction of the new lines was spread over fifteen years, the State contributing annual instalments of 50,000,000 lire.

In 1879 additional and extensive measures were introduced in order to expedite the construction of the lines most urgently required.

The proposed railways were divided into four categories, corresponding to their degrees of urgency, necessity, advisability and utility.

The first category is constructed at the expense

of the State; the second also by the State, but with a contribution of one-tenth of the expenditure by the provinces interested; the third the same, but with the contribution of one-fifth of the expenditure by the provinces.

As for the fourth category, it was mainly instituted in order to authorise the Government to undertake the construction of other lines necessitated by the spread of commercial activity without having recourse to fresh legislative measures.

Such operations must, however, be undertaken in strict conformity with the laws on general expenditure. It is also laid down that in this instance each commune or province, separately or combined, must be certified to possess the means of contributing four-tenths of the kilometric expenditure for the first 80,000 lire, three-tenths for the next 70,000, and one-tenth for the remainder.

The chief lines of the first and second categories, not yet finished, are shown by a dotted line on the map, with their probable dates of completion.

The first category required an expenditure of 430 million lire: this was spread over fifteen years, from 1880 to 1894. The second category is calculated to cost the State 266 millions, spread over eighteen years, from 1880 to 1897. For the 36 separate lines included in the third category the State contribution is calculated at 260 millions, spread over twenty years, from 1880 to 1900.

Parliamentary discussions on the subject in June, 1882, led to the abridging of the time allowed for

construction; it is now presumed that the lines of the second category will be completed in 1890 instead of 1895, those of the third in 1892 instead of 1899.

The Minister of War, General Ferrero, consulted as to the priority of the construction of the lines advisable from a military point of view, decided upon the following as of the most pressing importance. In 1885 instead of 1887; the lines, Bassano—Primolano; Lecco—Colico; Gozzano—Domodossola.

In 1887 instead of 1892; the lines, Aulla—Lucca; Garjano — Borgo san Donnino; Fabricano — Sant' Arcangelo; Solmona—Isernia—Campobasso.

In 1887 instead of 1889–1890; the lines Bologna—Verona; Avezzano—Ceprano; Catanzaro—Veraldi defile; Cosenza—Nocera.

These projects were approved, and the law comprehending these changes bears date July, 1882.

The Minister of Public Works is authorised by Article 7 of the law to proceed with the necessary measures for accelerating the construction of lines of special urgency for the defence of the State, with the consent and approval of the War Minister.

Military surveillance of the railways, and responsibility for the movements of troops in war time, was decided upon some years before the State engaged actively in the forwarding of railway enterprise.

In 1873, the Director-General of the railways of Upper Italy, in concert with three superior officers of the army, presented a report to the Minister of War on the subject of a military railway service.

The report embodies the regulations and bases of the

service from a general point of view, and was favourably received.

Briefly it was determined:

(1) To leave the personnel of the Companies as the active agents for all military movements.

(2) To attach a military staff to this personnel, in order:

(*a*) To serve as the intermediary between the companies and the headquarter staff in time of war, or the Minister of War in time of peace, and to regulate all combinations.

(*b*) To maintain military order in the stations at the points of arrival and departure; to regulate the succession of transports according to the dispositions made and orders received, without taking count of the desire of each authority or commander for priority.

(*c*) In case of the proximity of the enemy to occupy the threatened points of the line, and take all necessary measures for their defence or destruction as ordered.

The functions of all railway services may be summed up under three chief headings: Material, Railway, and Traffic.

We shall briefly glance at the existing conditions from these three points of view.

In the case of any contemplated military movements of importance in Italy officers are delegated to the chief direction, to the traffic superintendents, to the principal transit stations, and to the points of arrival and departure; the whole taking orders absolutely and without appeal from the Ministry of War or the headquarter staff.

In peace time this direction is known as the general direction of military railway services; in war time it becomes the general direction of military transports, while its functions become proportionately autocratic.

We have already noticed that a large number of officers from all branches of the service are annually detailed for a course of instruction in railway work. Their studies embrace all matters connected with practical railway management—the drawing up of time tables, the employment and quantity of types of material, the formation of trains, their conduct and manœuvring in the stations and on the lines, signalling, rapid methods of loading and unloading various kinds of stores, the entraining and detraining of troops of all arms at stations and in their neighbourhood, etc. etc.

Officers belonging to the cavalry and artillery are specially examined in matters relating to these branches of the service; intendance officers fathom the means available for facilitating the storage of provisions and the rationing of the men; medical officers determine the most suitable waggons for sick transport, and inspect convents and other roomy buildings near the stations most useful as temporary hospitals; each in his turn having particular regard for the services he will probably be called upon to perform in war time. By these means, and by the number of officers annually trained, it becomes possible for the headquarter staff in time of war to practically throw the entire management of railway transport into the hands of its own more devoted military agents well trained to the work. The

greatest assistance will probably be derived from this, for even admitting that there will be no want of zealous energy on the part of civil agents, still they will be always more liable to throw technical objections in the way than officers who can thoroughly understand that everything has to give way to the one point of orders being clearly given and punctually obeyed. Much disciplined assistance will also be derived from the number of men employed on the lines belonging to the reserves of the army. It has been laid down that in case of absolute necessity these men are to retain their employments, forming a semi-military railway corps, each man possessing a metal badge with the inscription *Brigata Ferroviaria* upon it.

If we consider the area of Italy alone, and compare it with the actual railway mileage, we shall find that the length of lines is comparatively equal to that of France, and superior to that of Austria.

Such a method of considering the question would, however, be a false one; the conditions are altogether reversed when the military elements of the question are taken into account.

In considering the geographical situation of the lines we find that there are three main arteries for assisting the concentration of troops on the French frontier, namely: (1) Verona—Milan—Turin; (2) Bologna—Plaisenza—Turin, and (3) Spezia—Savona—Ventimiglia, all with numerous branch lines of importance varying with the nature of the operations.

The proposed additions to this network will adequately meet all requirements, and therefore we may

say that as far as regards Piedmont the conditions are satisfactory.

Again, in case of a war with Austria, the lines Milan —Brescia; Plaisenza—Brescia; Modena—Mantua; and Bologna—Padua, ensure a fairly rapid concentration on the threatened frontier. The proposed additions to the Lombardo-Venetian system are extensive, and when completed may enable the Italians, once the capture or blockade of the Tyrol accomplished, to carry the war into the enemy's country.

The continuation of the main lines of Piedmont and Lombardy southward is inadequate and unsatisfactory.

It is in the rail communications of the peninsula that the peculiar disadvantages appear of giving private companies free scope for action without any regard to the future defence of the State against aggression.

Neither the line of the Adriatic nor that of the Mediterranean can be depended upon for the transport of troops twenty-four hours after the declaration of hostilities, unless Italy is absolutely and unquestionably superior at sea.

In the most favourable case they must be unsuitable for the transport of troops owing to their proximity to the coast line and consequent liability to constantly recurring damage or destruction by smart commanders of rapid cruisers; they would be altogether useless if the coasts were watched and patrolled by the fleets of a hostile maritime power, mistress of the seas.

In a few years Italy will possess two additional lines across the Apennines, which will increase the offensive power of the field army considerably.

The only central line, secure from hostile attack, at present existing, is that of Bologna—Florence, and even this is burdened with serious technical defects which detract from the full value of its position.

The curves are many and the gradients rapid, enabling only a limited number of carriages to be attached to each military train, while special engines have to be employed and the speed is necessarily slow. The result is that the military carrying power of this line is only half that of an average railway line in Italy, four battalions, one squadron and one battery being calculated as the maximum railway transport possible per diem.

The inadequacy of this traffic-power is evident. The success, or the reverse, of the transport of the Southern Army Corps and reservists to the valley of the Po, must be dependent on the intelligent management of the two great railway centres at Bologna and Florence.

If any considerable concentration is effected at either centre, the passage of the Apennines in force would be more rapidly managed by marching, leaving the railway clear for stores and material of war.

The railway system of Italy will remain imperfect and unsatisfactory until the most important of the lines projected in 1878 and 1879 are completed.

Taking the railway system as a whole, and excluding the better-planned and more skilfully executed lines of later years, we find that construction has been to no small extent hampered by insufficient skill, and by feverish anxiety to nominally complete the network in ultra-American fashion, without having due regard to

technical perfections, suitable to the traffic and importance of Italian highways in the not distant future.

In numerous instances we find low gradients sacrificed to economy and rapidity of construction, economic as regards construction, but the reverse when subsequent expenses of traction come to be considered, while from a military point of view the importance of low gradients is paramount.

Even as regards economy, the superficial knowledge occasionally displayed of the technical questions relating to the planning of a line of rail has been naturally productive of a primary expenditure out of all proportion to the results aimed at.

Nothing can be more unsatisfactory in its results than an attempt to construct a great national work of art in a hasty fashion, or a limited time.

For a really economic type of railway, such as was admittedly necessary for Italy, from eighteen months to two years of active practical ground survey can alone ensure the desired results.

In Italy, all long-thought-out schemes and national systematising was unsuited to the feverish anxiety of the men who initiated railways in Italy : a railway policy only dates from 1875.

In the trace of the earlier Italian lines we find commercial, political, and military considerations alternately discarded for the sake of requirements no longer of pressing importance.

It may be argued that we are considering the matter from a subjective or military point of view, but the answer is simple. The military question, in such a case,

is always intimately bound up with the commercial question, and it may be summed up as follows: A convenient construction, secure from hostile attacks, with capacity for the maximum amount of transport permitted by the general capabilities of the trace.

Of late years great interest and energy in the military side of this important subject has taken the place of that lethargic *insouciance* formerly the rule.

The general needs of a mobilisation are fairly provided for, although the excessive friction that will probably be caused by the number of reservists hurrying backwards and forwards, separately and by small parties, throughout the country, constitutes a dangerous factor and one that may lead to great confusion at the opening phase of any future campaign.

This probable friction in the first days of mobilisation is inseparable from the peculiar recruiting system employed.

The territorial grouping of army corps and divisions has, however, been so contrived that very few alterations will be required when social and interior improvements admit of territorialism being no source of danger.

The first signs of territorialism will probably be the reduction of the five zones of recruiting to three only.

There is no lack of administrative ability in Italy, but no matter how excellent the arrangements, no regulations can ensure the reserve men appearing at their districts at the day and the hour supposed, and this difficulty is increased by the incomplete system of communications throughout the peninsula.

The manœuvring of trains consequent on a vast

increase of traffic, combined with possible hostile incursions and traitorous attempts to destroy works of art in the interior, will certainly produce a state of affairs that will heavily tax the energies of the railway companies and their military adjuncts. Technical details might also be adduced to show how badly provided for such contingencies are.

As regards construction a commission was appointed in August, 1879, for the study of economies to be introduced in the construction and working of new lines of rail, and three distinct types were laid down, mainly distinguished by the relative speed of the trains working on them, namely a maximum of 40, 30 and 20 kilos. an hour.

The normal profile of the extreme load was established by a commission of engineers in 1871, representing the three great railway companies and the Ministry of Public Works, and was accepted by all the railway administrations and by the Government.

There resulted the definite establishment of a formal and practical code on all the Italian lines. The breadth (3·10) and the height (4·30) may be compared with the profile of the line Paris—Lyon—Méditerranée, breadth 3·20, height 4·30, and with that of the Austrian Südbahn, breadth 2·90, height 4·425, in other measurements similar to the Italian profile.

The commission of 1871 further laid down a distance of 15 cents. between the most salient point of the load and the profile of the work of art, in order to regulate the secure passage and working of the trains. These measurements ensure the working of the lines under

normal conditions, but allow no latitude, and do not guarantee the security of the personnel of the lines, the passage of a carriage with open doors, etc. Italian railways are mainly single lines, and as the great commercial highways are already constructed, there can be no question for the present of a general change to the double line, more especially since the necessity of this step has not yet been impressed upon the country. Even from a commercial standpoint, however, the traffic may soon be expected to cause this matter to be seriously considered by the railway companies, for within the last twenty years the amount and the value of imports and exports alone, to say nothing of passenger traffic, has nearly doubled, and the general traffic proportionately increased.

The opening of the St. Gothard Railway is another fact the consequences of which can scarcely be undervalued.

Having decided upon their single lines and laid them down, the Italians are consistent, and even military writers are found to deny any great gain from the use of the double system. They argue that in the early days of railways the electric telegraph was in its infancy, that no well-regulated system of signals had been formulated, and that in this case the double line appeared to be the unique method of obtaining the necessary security for considerable mobility, but that the electric telegraph being now such a powerful ally of the traffic manager, only very exceptional events would cause double lines of rail to be constructed.

Such arguments are plausible enough in appearance, and in times of peace, with a limited despatch of rolling stock, double lines do not always distinctly affirm their advantage over single ones; but, for the by no means unlikely strategic transport of enormous masses of men and material, when long and heavy trains will closely follow one another and return over the same identical lines, can these latter, if single only, be guaranteed to stand the wear and tear that peace traffic gives so little an idea of?

Comparatively speaking, the time taken to traverse any given journey is increased by one-third by the use of the single line; even this reduced rate of speed can only be attained when there are sufficient sidings at the stations on the road.

On about one-tenth only of the Italian railways the line is double.

Hence it is that while most continental powers calculate on despatching twenty-four military trains a day on their double lines of rail, Italy can despatch but eighteen, and these solely under the most favourable circumstances. Again, from geographical conditions Italy can ill afford to have her railway transport interrupted in war time for four-and-twenty hours.

With regard to the districts co-terminous with the French and Austrian frontiers, it must be remembered that the Italian system of defence is more defensive than offensive, and that these theatres are fairly compact, so that we shall not always have to calculate movements, save of primary concentration, by rail alone.

"Upon double track lines," writes Lord Wolseley, "worked upon the continental system, time is not gained in moving large bodies of troops, including their proportion of guns and *matériel*, by rail, when the proportion of sabres and bayonets is greater than 435 to the English mile of the distance to be got over."

Neither the number, size, nor construction of the stations fits them for strategical manœuvres on a grand scale.

Improvements have been recently made to remedy some of the most glaring defects, but there still remains much cause for obstruction and delay.

To begin with, most of the great central stations, such as Turin, Bologna, Florence, Rome, etc., are termini, this alone being a fruitful source of confusion in case of the necessity for rapid through traffic.

Some few of the great central stations possess sidings and platforms where several military trains can be simultaneously laden, but the great majority of intermediate stations are wanting in this respect, and do not even possess sufficient platform accommodation for entraining troops in over 25 carriages simultaneously.

Even if, at the points of departure, so many trains can be filled and despatched in the twenty-four hours, it is all of no use unless the carriages can be rapidly emptied at the points of arrival, which, in most instances, would be these very intermediate stations that do not possess sufficient means for the ends in view.

Minor stations in Italy are comparatively few and far apart. On the western frontier Turin, and on the

eastern Verona and Mantua, are most suitable for great concentrations. Infantry, of course, can be practically detrained anywhere, but guns and waggons are not so easily managed.

In the entire Alta Italia network there are only 20 stations, namely 9 in Piedmont, 4 in Lombardy, 3 in Central Italy, and 4 in Venetia, where 300 carriages can be collected in preparation for the movements of large bodies of troops.

In the 348 stations included in this system there are only 28 where guns and waggons can be entrained except singly, while 113 stations possess no entraining ramps whatsoever, and only 27 stations have turn-tables for engines and tenders.

Again, there are marked defects in the supply and quality of the rolling stock. In the report presented to Parliament by Colonel Marselli in 1878, it was stated that out of 1,339 locomotives in the country, only 616 were available for rail transport, or deducting the usual 50 per cent. for those undergoing repairs, a certainty of only 308 engines in place of the 720 admittedly necessary on mobilisation.

This number will be increased to 864 by the recent addition of two army corps to the strength of the Italian army in first line.

The carriages, vans, and trucks belonging to the railway companies, although of slightly inferior construction to those in use in other European states, are capable of transporting equal numbers of all arms. Those suitable for military purposes do not exceed 16,000, or deducting 30 per cent., 11,200 only.

These figures curiously agree with Signor Gabelli's figures in "Le Ferrovie Italiene nil caso d'una guerra," published so far back as 1873 in the April number of the *Nuova Antologia*. After going into a number of statistical details, Signor Gabelli came to the conclusion that Italy possessed sufficient rolling stock for six army corps, or just half of what she required.

The railway policy recently instituted includes an extensive purchase of rolling stock for which sums have been allowed, so that in a few years present criticism will not be applicable as far as the supply is concerned.

Military trains in Italy travel at the rate of $11\frac{1}{2}$ miles an hour.

The transport of an Italian army corps requires about 100 trains of from 30 to 35 carriages, or from 3,000 to 3,500 in all.

To supply an Italian army of 100,000 men in the peninsula or on the frontier line by a single line of rail, the proportion of rolling stock is 6·0 per mile of roadway, but for the same ends the severity of the gradients require at least 0·35 engines.

The proportion of rolling stock available compares unfavourably with that of other continental states :—

	Engines.	Carriages.	Vans and Waggons.
France	3·40	7·20	75·10 per 10,000 mètres.
Germany	2·95	4·51	62·40 „ „
Austria	2·62	5·12	51·56 „ „
Italy	1·70	5·82	27·00 „ „

Speaking of the private direction and the general and technical organisation of the railways of the country, Colonel Marselli in his report suggested that

"unity of direction, secrecy of preparation, harmony and rapidity of execution, may be unobtainable."

Such attention, however, has of recent years been given to the whole question, the projects of reform have been so vast and well-digested, and the sums allotted to the railways so colossal, that the objections to be urged against the system are few and chiefly technical in their nature.

The chief requirements of the existing system are:

(1) The rapid completion of the two lines proposed across the main range of the Apennines.

(2) Lateral or manœuvre lines on the frontiers, to assist strategic movements and deployments.

(3) Stations at intermediate points.

(4) The continuation southwards of at least one interior peninsular line, secure from maritime raids.

(5) Technical alterations and additions, such as a considerable increase in the rolling stock; sidings, to render possible great concentrations of rolling stock at important points; water-reservoirs; ramps for entraining and detraining guns and waggons; cross-overs, turn-tables, switches, etc. etc.

In case of war with an inferior naval power, maritime transport would assist in lessening the strain on railway resources.

Given the power and rapid development of the navy and mercantile marine, more may be possible in this direction than is generally supposed. The steam navigation societies alone dispose of some 80 ships, capable of carrying 70,000 men and 9,000 horses.

Arrangements have been made by which it is

supposed that in case of need a maritime expedition of 40,000 men can be rapidly equipped and despatched. Experience is the only reliable guide to show the maximum effort that a country can make in this direction.

Nothing is more futile and uncertain than to attempt to fix the maximum carrying power of a mercantile fleet in case of war. The circumstances of the case, the length of the journey, the nature of the campaign, the climate, and many other factors exercise an influence, always more or less indeterminate, upon the conditions of transport by sea.

The question of fortress defence is intimately connected, as a rule, with the railway system of a great military state, but the ruinous condition of the old fortresses of Italy and the absence of great artificial points of support for an army in the interior have gone far to make the peninsula an exception to the rule.

No other country has a larger number of fortified towns than Italy, and yet no other country is so badly defended by the art of the engineer.

The reason for this is obvious. Not until *Roma Capitale* became an accomplished fact; not until the Italian Parliament had taken up its quarters on Monte Citorio, had Italy been defended as a united country since the time of the Roman Empire.

Local attack and defence there has been and to spare, but no single-minded plan for the defence of the peninsula against all comers.

Hence we find not only a large number of strong places that are not required, but even some that are

absolutely hurtful, regarding the question from an Italian point of view.

Defence commissions that have inquired into these and similar questions have often recommended that such and such fortresses should wholly or in part be razed.

Such a thing is easy enough for a commission to propose, but when funds are wanting for necessary constructions, we can hardly blame Italians if they neglect to spend large sums upon purely destructive and apparently unproductive expenditure.

The result is by no means pleasant for those in high command in case of war, for the various sections of Italian defence are strewn with old-fashioned and neglected fortresses, useless if considered as really strong places, and yet dangerous to abandon to the invader's grip. History has shown what a paralysing influence such a state of affairs may exercise upon military actions and decisions.

Taking the works as they stand, we begin with a few words on the frontier works or barrier forts.

These are to a great extent of recent construction, and exhibit in all details of modern design, trace, and workmanship, greater skill and thoroughness than any other military engineering enterprise in the country.

The parliamentary credits which rendered possible these and other improvements in the fortress-defence of the country include :

(1) The laws of 1861, 1869, 1870, and 1872, which allowed 59,200,000 lire for the great works and buildings connected with the Spezia arsenal, dock-yard, and fortress.

(2) The laws of 1875, which gave 23,000,000 lire for the Tarentum arsenal and fortress.

(3) The laws of June, 1875, which granted 21,000,000 lire for the various defensive schemes proposed by the military authorities. Of this sum, 13,000,000 were apportioned for the construction or improvement of the barrier forts, with accessory roads, battery emplacements, and mining details, declared of public utility by a Royal decree dated August 10, 1875.

(4) The laws of June, 1880, giving 25,000,000 lire for defensive works, 18,000,000 being taken for the barrier forts, 4,000,000 for coast defences, and the remainder for the detached works encircling the capital.

(5) Shortly after the last credit a question arose of devoting 144,000,000 lire to extensive works of national defence.

Plans were prepared for the completion of works judged urgent on a very magnificent scale, but only 55,000,000 were allotted by Parliament (December 16, 1881).

Although this was but one of the interminable contests between the Ministries of Finance and War, no other has been so equally fruitful in unfortunate results. The original plans were modified and the work begun on a reduced scale of importance, but still too much was attempted with too limited means. Economy had gone too far, or not far enough, for thoroughness is the one essential for a modern fortress, and it would have been wiser to have temporarily abandoned a pet project than to have undertaken it with insufficient

resources. The unwisdom of this step will be presently exemplified in the case of Rome.

(6) In January, 1882, 2,000,000 lire in addition were voted for the defence of Rome.

The barrier forts are formed by earth and stone-work lunettes; trenches, redoubts, redans, and plain battery pits are often added. Masonry has been freely used, and the interior of the works defiladed as well as the difficulties of the ground admit. The forts possess bomb-proof cover for 300 men, barrack accommodation and magazines for the storage of ammunition and supplies in excess of the requirements of the garrisons proper. The guns are mounted on the barbette principle.

Of the barrier forts and accessory works on the French or western frontier, from the valley of Aosta to the Col de Tende, the following are the most important:—

(*a*) In the valley of Aosta, ten miles below Chatillon, is the celebrated Fort Bard, perched on a conical rock in a commanding position at a narrow point of the valley, completely barring the passage.

This fort has been of late years improved and armed with heavy guns, and is in a position to withstand an attack by modern ordnance.

The events of 1800 will scarcely be again repeated in this celebrated pass. It will be remembered with what surprise and chagrin Napoleon heard of the advance of his troops being so sturdily opposed by the diminutive garrison of this little-considered post; how Lannes, commanding the advanced guard, was

neither able to establish breaching batteries nor reduce the garrison by threats or desperate assaults; and how insuperable such an obstacle would have appeared to all but a man of Napoleon's indomitable will and energy.

It can be understood how men and horses—the whole army, in fact—passed in single file by that narrow turning track, so happily discovered, but to this day it is hard to understand how the wheels of the guns and carriages were muffled, the road through the little village, nestling at the foot of that imposing rock, covered by night with dung and straw, and the guns and limbers dragged past the fort by hand, without the annihilation of the gunners and the failure of the enterprise.

A *mémoire* which has recently seen the light, by the hand of the brave Austrian commander of the fort, strange to say throws no light upon this extraordinary episode; it is enough that it was successful, and the victory of Marengo suitably terminated a campaign as brilliantly conceived as it was audaciously executed.

(*b*) At the pass of Mont Cenis there are three forts with accessory batteries and entrenchments, which were armed with guns of heavy calibre and received a permanent garrison in 1881.

The district comprised between the passes of Mont Cenis and Monte Viso is of capital importance in the defence of the western frontier. It is in this section of the Alps that the greatest efforts have been made to provide suitable means for defence.

The length of the Mont Cenis tunnel is 12,233 mètres,

and may be compared with the St. Gothard, 14,920 mètres.

The peculiar importance consists, however, in the *general practicability* of this section of the Alps to invasion.

At almost all periods of history this mountain barrier has been overcome by great invading columns.

The armies of Charles VII. and François I. laboured under far greater natural difficulties during their advance than an invading host would to-day, while they were equally burdened with cumbersome ordnance and impedimenta. To-day, however, it is the enemy who has chiefly to be reckoned with; in former times it was mainly the passive obstacle of the mountain barrier.

As regards the summit of Mont Cenis the line of watershed is less a saddle than a plateau, and while the formation of the ground has enabled the Italians to erect considerable works of fortification, it is a question whether the advantages of the position counterbalance the disadvantages. The locality certainly affords considerable tactical advantages for stout defence, but it may equally allow the assailants to deploy much larger numbers of troops in the attack than is usually practicable in mountain warfare.

(*c*) In the valley of the Dora Riparia, near Exilles, there are two forts.

(*d*) At Fenestrelle, in the valley of the Chisone, there are three forts with supplementary redoubts, batteries, and entrenchments; like the fortifications on the Mont Cenis plateau they are more solid and important than an isolated and solitary barrier fort.

(*e*) In the valley of the Stura there are works at Vinadio in an advanced state of preparation.

(*f*) On the upper Roya, Fort San Dalmazzo.

(*g*) At the Col de Tende a new fort lately built at a cost of 1,100,000 lire.

(*h*) On the sea-coast the fort of Ventimiglia.

The crest line of the mountains facing the Ligurian Riviera possesses its own system of local defence ; but in this section the passive obstacles are of infinitely less importance than the active defence, since the natural difficulties of the ground are not to be compared with the conditions existing on the western frontier.

On the Swiss frontier there are no considerable works of importance ; neither the configuration of the frontier nor the political outlook appear to demand them. The politico-strategic importance of the St. Gothard is, however, a fact that might have considerable influence in such contingencies as an Italo-German alliance.

Facing the Tyrol barrier forts are peculiarly necessary on account of the menacing, bastion-like configuration of the Austrian frontier at this point.

The old fort of Rocca d'Anfo has been remodelled, batteries added, and the whole made capable of withstanding an attack by modern rifled cannon.

At Chiuseforte there are two new closed works, one of them commanding the valley of Raccolana.

North of Verona, Forts Rivoli and Ceraino (the Austrian Wohlgemüth and Hlawatz) have been repaired and armed with heavy guns.

The blockade of the Tyrol is completed by some fresh works at Piano delle Fugazze on the Roveredo—

Schio—Padua road, where three casemated batteries have been recently constructed and the bridges in connection with the defence mined.

These are the most important of the works completed or in progress, the type being that laid down by the commission of 1874, namely, a closed work armed with heavy ordnance, suitable for a garrison of 300 men and costing 500,000 lire. Other supplementary defences have been designed in case of need, while communications have been improved and other preparations made for a resolute defence.

Fortified posts of inferior trace and importance nominally close some of the roads leading to Venetia from the adjoining mountainous districts, but it is unnecessary to enumerate them, for Venetia is not easily defensible against Austrian attack on account of the enveloping nature of the frontier; in any case the system of perimetral defence, as the capital element, would very improbably be resorted to.

As regards determined frontier defence it will be seen that there are three distinct zones of resistance corresponding to the Tyrol, the western frontier, and the Riviera di Ponenti; in each case the most necessary conditions of design and position of the barrier forts have been satisfactorily fulfilled.

Turning to the "strong places," if such we may call the dismantled and neglected fortresses which abound in Italy, we find a very different state of affairs.

It may not be pleasant reading for Italians, but it is a fact that while nominally fortified points are so plentiful throughout the peninsula, yet no country in

Europe is so open to invasion as far as regards the resisting influence of great fortresses.

But the Italians have had neither the milliards of the German victors nor the stored-up wealth of the French middle classes with which to complete or remodel their national fortifications. They have neither had the means nor felt the want.

It is rather a subject of pride for Italians that they have kept steadfastly in view the increase and development of their field forces, to the semi-exclusion of all secondary elements of defence.

It must always be regarded as more or less a confession of weakness when spade-work is the exclusive military anxiety of a nation.

If we cannot consider the majority of Italian "strong places" in the light of fortresses, they must still be noticed, if only as obstacles or as central points for the protection of magazines and stores. As such they retain some importance, while the strides that field fortification has made since the introduction of the breech-loader makes every defensible position, or series of works forming the nucleus of such a position, a point of interest, so long as men, guns, and the material for mobile fortresses are obtainable.

On the western frontier, the most important point nominally in a state of defence is Alexandria. The anomalous character of a fortress at this point, under present conditions, must be notorious from its past history. Fortified and prepared as a point of support and magazine-fortress for a French army operating in Lombardy, as originally designed by Napoleon, the

importance of the position is great. So little, however, is it suitable as a fortress in the hands of the defenders of Italian soil, that there was a question raised by the Austrians at the Congress of Paris in 1815, that its defences might be levelled. In its present condition it is altogether useless as a modern fortress. The bastioned enceinte, such as it is, is in fair preservation, but in the sense that one would speak of a ruin rather than a fortress. It possesses none of the desiderata of the modern enceinte save command, and it is directly open to the fire of breaching batteries. Three advanced earthwork lunettes on the west, south, and east fronts respectively, possess no technical importance whatsoever. Without a series of detached works pushed well forward to the heights of San Salvatore, Alexandria is indefensible. It is not likely such expenses will be incurred; other more important points will first demand attention.

If, however, Alexandria is fortified, Casale cannot remain undefended, for it practically forms part of the same position. At present Casale possesses an antiquated enceinte with a *tête-de-pont* on the Po, which neither protects the railway bridge nor the ordinary communications across the river.

Verona and Peschiera have not been touched since the Austrian occupation; the northern fronts of these places remain open to attack.

Verona being an important town the suggestion that its defences should be razed met with strenuous opposition in certain quarters, but it has been decided that it is too near the frontier of the Tyrol to serve as a

centre of defence. A subsequent decision, to preserve it as it stands, in order to serve as a base of operations at the foot of the Alps, is more open to question, since the northern and eastern fronts are those in the worst state of repair.

Legnago, an important bridge-head on the Adige, remains untouched.

Venice, admirably adapted for defence, has not had a lira expended upon its land defences. The bridge-head of Malghera is inadequate for the requirements of the situation, and must be strengthened and enlarged.

Recently a parliamentary credit has enabled the Ministry of Marine to increase the depth of the canal from Malamoco to the arsenal to 9 mètres, so that heavy ironclads can enter. The coast defences of Venice at Forts Lido, Malamoco, Chioggia, and Brondolo are respectable, and command the entrances to the inner lagoon.

Pavia, Cremona, and Pizzeghettone, the latter a bridge-head on the Adda, have certain ruined ramparts of no importance whatsoever.

Mantua is a point of great value for Italy, whether the invasion threatens from north, east, or west; the position has always played a leading *rôle* in the many struggles in the valley of the Po. The Seraglio and Borgoforte should be included in its defensive system. Like many other important points its defences have fallen into decay, the north-eastern front being particularly weak. There would be no insuperable difficulties against making Mantua a first-class fortress; the marshes and lakes surrounding it offer great facilities for extensive inundations.

Plaisenza, the military centre of the valley of the Po, is in a deplorable condition, considering its capital importance. The bastioned enceinte of the town, though in fair preservation, is of an antique type similar to that of Alexandria, and equally unsuited to resist an attack under modern conditions of warfare. There is a weak bridge-head on the left bank of the Po, and some advanced works of no value on the south-east front, but immunity from bombardment is in no way secured.

Cremona, Pizzeghettone, and the defile of Stradella are all closely connected with the defences of Plaisenza. There should be no difficulty in the construction of suitable field entrenchments at Stradella in a relatively short space of time; but at Cremona and Plaisenza the nucleus, at all events, of more solid defence is to be desired.

The natural defensive capabilities of Genoa, though considerable, have not yet been fully developed. The northern and eastern fronts of the land defences are of great natural strength; fifty years ago the fortress itself would have been considered of commanding strength; but to-day modern rifled artillery would play havoc with the old type of permanent bastioned trace, of which Genoa supplies an example.

The great natural strength of the ground to east and north, with the commanding positions of Forts Quezzi, Monteratti, Richelieu, Santa-Tecla, San-Martino, and San-Giuliano, precludes the idea of an attack on these fronts, save by surprise, without the preliminary defeat of the Italian main field army in the valley of the Po.

The weak points of Genoa are the sea-coast and the western fronts.

The entrance to the harbour is, indeed, defended by batteries and torpedoes, but there is nothing to prevent a great war-fleet silencing the batteries one at a time, while the whole of the town is open to bombardment. The artificial harbour has been generally abandoned by home and foreign war-fleets since the construction of the Spezia works. As regards the western front of the land defences, the detached works are too close to the enceinte to suit the requirements of modern siege warfare. So long as there are no detached forts on the right bank of the Polcevera, a maritime attack could be combined with a land bombardment and assault.

The extension of the defences of Genoa westward would, however, necessitate considerable expenditure, since a number of points would have to be occupied in order to prevent their seizure by the enemy.

The gradual slope of the mountain side up to the summit of Monte Guardia, renders an economical solution of the defence problem by no means easy.

Spezia, arsenal and fortress, is, unlike Genoa, of great natural strength on the sea-front. The harbour and its approaches are swept by coast batteries, solidly constructed, and armed with the heaviest ordnance. These, in conjunction with stone-dykes, torpedoes, and other accessory defences, render a maritime attack an extremely hazardous operation.

Italy can be conquered without a foe appearing before Spezia; it is a purely maritime stronghold, of no strategic importance for the field armies of invasion or defence.

The delicate question of land defences for such an important maritime arsenal has been satisfactorily solved without undue exaggeration. Briefly, there are three groups of works, one on each of the wings of the coast defences, protecting the flanks, and a third in rear of the town, commanding all the main approaches from the interior.

Spezia is the solitary instance in Italy of a great fortress, constructed in accordance with modern conditions of warfare. The probable armament of the great shore batteries of this stronghold, with 100-ton guns and Gruson plates and turrets, will deny all ingress or insult by hostile fleets.

Bologna is the natural *réduit* of all Italian trans-Apennine defence. The body of the place is of a plain polygonal trace, unflanked and quite unsuited to withstand the attack of rifled cannon. The enceinte proper is 500 yards in front of this, formed by a weak line of earthwork parapet with *flêches* at intervals; there is no ditch, and the whole is insignificant. The detached works include a series of small and weak lunettes, stretching some 1,000 yards into the plain from the gates of the town; neither these, nor some similar works on the slopes of the Apennines, to the south of the town, afford protection even from bombardment.

The whole of the defences of Bologna are of weak trace and feeble profile, unarmed, overgrown, uncared for, and rapidly falling into ruin.

General Baron Haymerlé, in "Italicæ Res," writes of a project of forming Bologna into a vast entrenched camp, in accordance with modern ideas, by including

the heights of Monte Culvo to the east, of Monte Capra to the west, and of Monte Sabino to the south, in the general system of defence, and of pushing solidly constructed earthworks well out into the plain.

Such a project would include the construction of a group of detached works on the heights of Montebudello and Monteveglio, south of Bassano, in order to guard against a turning movement by the newly-made roads to the eastward.

The intention, if one may judge from the official report on the subject, is to "present a position large enough to receive the whole of the combatant army; strong enough, naturally and artificially, to make a long resistance, no matter what means for attack the adversary may possess. . . . . The position of Bologna allows the works of fortification to be extended in a manner to form two entrenched camps, one in the plain and another on the hills, and the space will suffice to contain an army of 200,000 men and more."

At some future date it is possible that these ideas may be realised; at present their fulfilment is beyond the reach of Italian finance. Besides, the Italian dream of creating at this point a vast entrenched camp, is scarcely in accordance with the teachings of modern warfare. Bologna is indubitably a town of military importance, second only to Plaisenza, but later campaigns in Europe do not seem to advise the creation of a huge army trap in a position where a magazine-fortress, a fortified bridge-head, or *tête-de-défilé*, would not only suffice, but be of incontestably superior value.

Ancona, on the Adriatic, has suffered in the same

way as Genoa from the practical concentration of maritime energy at Spezia. On the land side the town is defended by an enceinte in fair preservation, but the great worth of the land defences consists in the natural strength of the rampart of hills which encircle the town to the west. A line of detached forts at an average distance of 4,000 yards from the enceinte afford protection from bombardment; the works themselves are of earth and masonry, and are in better repair than the generality of Italian defences.

A division of militia would sufficiently guarantee the town against a *coup-de-main*; a week's spade work intelligently planned would place the town in ample security in case of attack by very superior numbers.

The coast defences, however, are not commensurate with the strength and extent of the land frontage, and a great war-fleet would probably be able to give a satisfactory account of the shore batteries.

Excellently situated as Ancona is for naval operations in the Adriatic, the harbour is too small to receive or protect war-ships in any great number. This is unfortunate, for although the Italians hope to have rendered a second Lissa impossible, still the absence of secure bases for maritime operations between Venice and Taranto must to some extent lessen the sphere of action of their ironclad fleet in war.

If we except a small fort at Baïa, the only points in Southern Italy defended by fortifications are Gaëte, Capua, and Taranto.

Gaëte is a point of second-rate technical and strategic value.

The shape of the coast-line enables a war-fleet to remain at anchor a very short distance from the town and yet out of sight of the defensive works, while there is nothing to prevent hostile ships from cutting the direct communication between Gaëte and Capua, and almost isolating the former point.

Capua in its present condition is indefensible, except against a *coup-de-main*; in spite of its important strategical position, the nature of the ground renders the task of fortifying it by permanent works by no means easy.

Taranto will some day play an important part in international politics, when Italy is enabled to give greater weight to her national aspirations in the Mediterranean.

The plans for the establishment at this point of a great maritime fortress and arsenal were prepared in 1869 by General Chiodo, the designer and constructor of the Spezia defences, the expense being calculated at 23,000,000 lire. In 1873 the Chamber granted this expenditure, or rather, as has often been the case, it was the Opposition which forced the measure on the Government. The Ministry resigned in consequence of this vote.

In case of a maritime expedition with Rome for the objective point, the two most suitable landing-places on the Mediterranean are Monte Argentaro and Civita-Vecchia. The Italians have occupied themselves in particular with fortifying the former point, which is of considerable natural strength, and have neglected Civita-Vecchia, which, though nominally fortified and marked

with the misleading star on most military maps, is in reality perfectly open to a *coup-de-main*.

Of the islands Elba has been altogether neglected. Porto-Ferraio is capable of being made a maritime base of no mean order, and Longone is also very defensible. In their present condition the defences of these two points are practically useless.

In Sardinia one of the most important points at present defenceless is Maddelina; in case of a war with France a few heavy guns at Maddelina and Porto-Ferraio would much assist the offensive action of the Italian fleet.

In Sicily Messina is the only town possessing coast batteries and accessory works of defence, but they are of very inferior worth, and could not make any real stand against the crushing fire of an ironclad fleet.

Given the local conditions and the determination of the political economists which forced upon the country the reduction of the preliminary plans to a more contracted scale, an ideal solution of the defensive schemes for Rome was hardly to be expected.

If we regard the Rome of to-day as a great modern fortress, and compare it with Paris, Metz, Lyons, or Strasburg, and criticise it on the same lines as these monster fortifications, all our pains are useless, for the city has no claim to the pretensions of a modern first-class fortress.

The question is simply this: Has the girdle of detached forts round Rome secured the city from bombardment or from capture by a sudden *coup-de-main* by an enterprising enemy, mistress of the seas?

The only means of answering this question is by a description of the advantages and defects of the fortifications.

The works of defence for Rome were originally put forward in a definite form by the commission of national defence at the time when the general plans for the defence of the kingdom were under consideration.

The propositions of the commission included the defence of the existing enceinte, combined with the construction of detached forts at varying distances from the body of the place, the most advanced works being from 9 to 10 kilos. from the Piazza Colonna in the centre of the town.

The Chamber threw out this project on account of its expense, and Lieut.-General Longo was charged by General Ricotti, then Minister of War, with the preparation of plans on a more restricted scale. General Longo's designs form the basis of the present works of fortification.

It was due to the energy of General Mezzacappo, when Minister of War in 1877, combined with the pressure of current events, that the construction of permanent works of defence were at length taken in hand with a will.

The fortifications were commenced at seven points simultaneously, the object being to, at all events, form solid heads of defence to command the surrounding country so far as the nature of the ground admitted, and to render difficult the establishment of hostile batteries.

That solution, hoped for by all Italian soldiers, of

the formation of a first-class modern fortress, was, for financial reasons, out of the question.

Six of the forts were commenced on the heights north-west of the town, facing the Leonina—Urbana enceinte. A seventh was begun on the Via Appia Antica, and subsequently an eighth was judged necessary near the Via Ardeatina. All these works are now completed, while those defending the low-lying ground south and east of the town are being constructed. These additional works sweep round to the Tiber again and complete the circle of defence.

The type of the forts is identical, and varies only in detail of execution.

The shape is that of the lunette, with obtuse salients of 130° or 145°; each fort has several rectilineal fronts and a gorge, the latter unprovided with artillery.

The calculated garrison of each is from 1,000 to 1,500 men.

The parapets are designed for fifteen or twenty 16 c. or 24 c. cannon; in most of the forts only one-third of the guns required are in position.

The flanks of the works are usually parallel with the capital; there is a covered way or patrol path widening at the place of arms by the gorge gateway. The masonry caponiers are in most instances double at the salients and the gorges, single at the shoulders, and have posterns leading to the interior of the fort. Traverses have been freely used between the gun platforms, but to economise space there are no great central traverses.

The cannon are mounted on high iron carriages,

and fire on the barbette principle; iron ladders lead from the banquette to the superior slope of the parapet, but something more suitable for infantry defence would probably be provided for in action, apart from the fort itself.

None of the works possess *réduits*. Under the terre-pleins are the usual store and shell-filling rooms, barracks for the garrison, etc. Ample bomb-proof cover is thus afforded, while the traverses themselves give cover secure from fire. The revetment of the ditches is formed by a very hard stone found in the Campagna quarries; the ground itself, to a very considerable depth, is formed of strata of volcanic stone which geologists suppose to have been deposited by ancient craters, to-day serving as beds for the lakes of Albano and Nemi.

This latter fact, combined with the noted insalubrity of the Campagna, would cause an assailant to weigh well the chances of success before venturing on a lengthy and hazardous regular siege.

The forts are connected by telegraph with one another and with a central station in Rome; road communication is extremely defective; there has been no sort of attempt made to construct a circular road or railway, while the tram lines are of no very great utility.

South and east of the city, on the left bank of the Tiber, are Forts Monte Antenne, Pietra lata, Tibertina, Prenestina, Appia Antica, and Grotta Perfetta (or Ardeatina).

The postponement of the completion of these defences so long after the construction of the works

on the right bank of the river proves that an attack is least dreaded from south and east.

An assailant following Hannibal's example and attempting the reduction of the city from the flat country, would find more connected and extensive positions for his batteries, but in all other technical and tactical details the defence would be the chief gainer; while in the last stages of the attack it would remain open to the garrison to retire to the right bank of the Tiber, and there defy all attempts to dislodge them from the east. From topographical reasons, Forts Appia Antica and Grotta Perfetta possess greater importance than the remainder of the defences on this side of the town. These two works are just 2 kilos. apart. Fort Appia Antica (71) commands the country well towards the Rome—Naples railway, the Claudian aqueduct, and the new and old Appian Ways. Fort Grotta Perfetta sweeps with its fire the Via Ardeatina, the Via Laurentia (partially only), and the ravine of the Annunziatella. Due south of this work and parallel to the general front of the defence, runs the Fosso di Vigna Murata, 1,500 mètres distant, with its westerly continuations to the Tiber, the Fosso di Ponte Bottero, and the Fosso della Valchelfa. Fort Grotta Perfetta commands but a small portion of the first-named ravine, due south of its parapets. Fort Appia Antica, however, partially enfilades the Fosso di Vigna Murata, south of the rounded knolls which rise abruptly north of the ravine, and would but for this give a perfectly sheltered position from which to commence an attack on Fort Grotta Perfetta.

A section of the ravines in question, east and west of the Ponte Bottero on the Via Laurentia, 1,200 mètres in length and 300 in breadth, is not commanded by either work; nor, from the nature of the ground, can it be so commanded, unless accessory works are pushed close up to this dangerous zone.

Access to the low-lying ground by Ponte Bottero could be gained either by the Fosso Cecchinola or by the Via Laurentia, which runs through a deep cutting 1,300 mètres long, south of the Ponte Bottero.

These two forts, then, in spite of the comparatively open nature of the ground, would have serious difficulties to contend with in case of attack, while the above-mentioned ravines are but an example of the great general assistance an assailant would derive from the rolling and broken character of the Campagna.

The construction of accessory batteries and entrenchments in this quarter might meet with serious obstacles unless planned and commenced before the outbreak of war, for the two forts are only 51 and 71 mètres above Tiber level respectively; and the slopes to the southward, rising gradually, offer, at the usual distances, for the first artillery attack, a number of good positions, with considerable command over the terrain upon which the forts in question are constructed.

The establishment of batteries on the hills, to the south of San Paolo, would be fruitless unless combined with an attack on Fort Portuense, on the right bank of the Tiber, since the Porta San Paolo would be barely within range for effective bombardment, while the Palatine and Aventine would intervene beyond and prevent

the fire reaching the most populated districts of the city.

The average breadth of the Tiber below Rome is 120 mètres; it could be of course rendered unnavigable with ease; but its use for the transport of heavy war material cannot be over-estimated, either by attack or defence.

The front of Rome included between Forts Monte Mario and Portuense is at once the most inviting to attack, and the most critically dangerous for the defenders.

The "heads of defence" in this section are formed by the six following works: (1) Fort Monte Mario (146), topping the hill of that name in a commanding position close to the Via Trionfale; (2) Fort Braschi (96), north of the Casetta Braschi, on the Strada del Pignetto Sachetti; (3) Fort Vulcanuta (84), on the Strada di Boccea; (4) Fort Aurelia Antica (76), at the junction of the Via Aurelia and the Strada della Casetta Mattei; (5) Fort Trojani (75), near the villa of that name, west of the Monte del Casaletto; and lastly, (6) Fort Portuense (65), on the Via Portuense.

We must, however, consider neither the names nor the number of the forts as arbitrarily fixed, for a number of questions have arisen which prove that the present state of affairs is by no means considered settled.

An assailant from this quarter would have three chief courses open to him, to attack: (*a*) The two southern works, Ports Portuense and Trojani; (*b*) The three central forts of Trojani, Aurelia Antica, and Vulcanuta; or (*c*) the northern section comprised between Forts Braschi and Monte Mario.

In the first instance, the most direct for an enemy advancing from a base on the Mediterranean, the locality is favourable inasmuch as the country is extremely broken—villas, pine-groves, gardens, and innumerable accidents of ground preventing the defence from having a clear ground for fire, and offering so many rungs on the ladder for the attack to grip.

The Rome—Spezia railway, and the water-way of the Tiber, can both be utilised for the transport of war supplies.

The Fosso della Magliana and its north-westerly continuations offer in this instance a broad and extensive place of arms for the men and material of the assailant. Happily for the defence, however, the undulating ridges on the north of these ravines, instead of running parallel with them as on the left bank of the Tiber, slope down towards them from the forts in question, and enable them to be partially commanded by a skilful disposition of the defences. Fort Portuense is 4,000 mètres distant from the ravines, Fort Trojani 2,600 mètres. The latter work is well placed to command a great part of the Fosso della Magliana from the Ponte della Pisana to the Ponte della Toretta. Fort Aurelia Antica, 4,000 mètres from the Ponte della Pisana, sweeps important sections of the Fosso della Brevetta and the Strada della Pisana.

In case of attack the defenders would have to rapidly throw up battery emplacements and field entrenchments in this quarter, for while the expressed object of the restricted plans has been gained by the formation of solid "heads of defence," there still remain

many points unguarded which might prove fatal if proper measures were not taken in good time to harden the defensive line.

The more or less saliency of the fortifications in this quarter will enable the attack to close in on Fort Trojani, and render that work a not particularly enviable position, while secondary defences, if pushed far ahead of the line at present held, will be liable to enfilade from the high ground south of La Maglianella and the Via Aurelia.

The particular objection to an attack from this quarter seems to be that success would not be, *ipso facto*, decisive, for the defenders could withdraw when hard pressed to the high ground on either bank of the Fosso di Pozzo Pantaleo without laying bare the city to close or direct bombardment, and without any dangerous departure from the general lines of the defences as they stand.

In the second case, that of an attack on the three central forts of the western front, the difficulties of the assailant would increase and those of the defence diminish. The front to be attacked is more extended, and the trace of the general plan of the defensive system offers no opportunity for an attack pushed home on any single fort to the exclusion of the remainder.

The general run of the undulating ridges on this front is north and south. The defence possesses better marked, more defensible and more extended positions than in any other quarter. A successful attack would not even here necessarily entail the fall of the town, for although Fort Aurelia Antica is only 3,800 mètres

from the banks of the Tiber, the very defensible and high ground about the Villa Pamphili offers a second position of tried value for a more contracted defence.

There remains the last course, that of an attack on Forts Braschi and Monte Mario. Fort Braschi commands the large extent of ground between the Boccea and Trionfale roads. In case of attack from the west there would be no difficulty experienced in constructing additional entrenchments on the high ground between Forts Braschi and Vulcanuta. In the not unlikely case of the main attack being made on Fort Monte Mario from the heights of St. Onofrio, the case is different.

Fort Monte Mario (146) commands well the surrounding country and the valley of the Tiber, but its critical and isolated position invites attack. It is the Valérien of Rome. An assailant commencing his artillery attack on and near the heights of St. Onofrio, and gradually closing in his lines on Monte Mario, could so deluge this strong but isolated work with fire that in spite of its command the position would become untenable. The question therefore arises : What secondary works can the defence erect between Forts Braschi and Monte Mario, and what value would they possess in case of attack ?

It can easily be believed that the difficulties consequent on the reduction of the original plan of defence within more narrow limits were better appreciated in this section than in any other.

The ground is very broken, deeply cut with ravines, covered with villas, groves, and vineyards. Preserving the present general line of defence, there is not one

good position for trench or battery between the two forts in question, while Fort Braschi can only bring one-fourth of its cannon to bear in a northerly direction. If the first line is pushed further forward in this section, not much is gained as far as the locality is concerned; while unless this enlargement of the zone of defence is general, the objectionable salient becomes all the more acute. Siege operations, while practicable against Fort Braschi, are only partially possible against Fort Monte Mario; the attack would probably rely on a heavy and sustained cannon and rifle-fire.

Fort Monte Mario was originally designed and constructed in the lunette shape proper, but lately a flank has been added, exhausting all available space on the hill and commanding the low-lying ground surrounding the Ponte Molle. There is no ditch in front of this face, for it is evidently imagined that sufficient strength is derived from the steep slopes of the hill-side; but without scarping there would be no insuperable difficulty to an infantry assault. Local circumstances, too, admit of strong columns approaching within range of this work out of sight of the garrison.

On this same front of the fort the workmanship is so inferior that the masonry is in part visible at the ends of the traverses, and could be breached from the ground north and north-east of the Piazza d'Arme. Taking the fort as it stands, it is certainly not to be despised, in spite of many defects, since the valleys of the Inferno and the Acqua Traversa are well commanded by its fire, and there is ample bomb-proof cover under terre-plein and traverse.

It is a question, however, whether heavy cannon can be worked, as they are in this case mounted, on the barbette principle, in such an exposed and isolated position. In such a case as the enceinte of a great modern fortress—Antwerp, for instance—the barbette system admits of vast fire power and energy in the fire command; but in the case of one of the front faces of Fort Monte Mario, where five guns would have to withstand a heavy concentrated fire from north, north-east, and west, it is evident enough that every possible protection devised by modern ingenuity should be afforded to the gunners to enable them to maintain what must in any case be an unequal contest.

The interior space of the fort, small in itself, is from necessity cramped by the many traverses rendered necessary by the salient position of the work in regard to the general line of defence; given again the difficulty of constructing batteries and entrenchments in this section of the defence on account of the broken and unfavourable nature of the ground, we find a number of disadvantageous circumstances militating against a convenient distribution and employment of the defensive forces.

The advantages possessed by Fort Monte Mario, the key of Rome, are: a good command over the surrounding country, and a difficulty of regularly conducted siege operations against it owing to its isolation and command.

The disadvantages are: isolation, only five guns of Fort Braschi assisting at all in its defence; difficulty, from circumstances of local topography, in the

establishment of batteries giving increased resistance; absence of good positions for infantry defence; liability to a *coup-de-main* from the above causes, from the possibility of a strong assaulting column advancing close to the work unobserved, from the untenable nature of the low-lying ground to the east of the fort without an extension of the defensive lines north of the Ponte Molle, and lastly, from the general saliency of the position.

It is very unsatisfactory for the defenders of the capital that the northern forts do not include the Ponte Molle within their exterior circumference, for the power of acting offensively to the north of the town is considerably reduced by this omission, and an enemy permitted to close in his lines dangerously near to the Piazza del Popolo. As matters stand at present batteries could be established, north of the Ponte Molle, 3,000 mètres from the Piazza by the assailant, and yet 2,000 mètres from the nine heavy guns of Fort Monte Mario which could be brought to bear in this direction.

The exterior circumference of the defensive lines is 35 kilomètres; that of the enceinte 18 kilomètres.

For each kilomètre of the defensive front of the outer circle of defence 500 infantry, 14 cavalry, 10 field artillery, 58 garrison artillery, and 20 engineers are allowed, or 602 men per kilomètre.

For the garrison of the 2nd line, or central nucleus, 200 men per kilomètre are allowed. Of the defenders of the outer circle of works, two-fifths are taken from the active army, and three-fifths are mobile militia.

Going on this calculation, and adding the estimated garrisons of the permanent forts, we find the strength of the garrison to reach 36,070, rather more than a division of the active army being required in addition to the militia.

The prestige of *Roma Capitale* would probably cause a far greater garrison to be thrown into the city if there were any probability of attack. The question of supplies for inhabitants and garrison would then assume a formidable character, for Rome is no fortified province like Paris, enclosing a number of prosperous towns and villages capable of considerable production and supply. On the contrary, food is scanty and dear, the town relying mainly upon the southern provinces for its vegetable supply.

From the above data anyone can draw his own conclusions as to the real strength of the Eternal City. It is very evident, however, that energetic action on the part of the assailant is demanded by local and technical circumstances, while an investment could be drawn close, and, unless disturbed from without, would have every probability of success.

We find, then, three distinct types of fortifications in Italy, each possessing its own peculiar and distinguishing characteristics.

First there are the hill-forts, either modernised or of entirely modern design, storm-proof posts against the first rush of an impending flood, strong in construction, and armed with heavy ordnance.

Next there are the few great fortresses, Spezia, Rome, and in the future Taranto, the first and last-

named eminently offensive fortresses for the furtherance of militant maritime activity.

Lastly there are the numerous antique "strong places," possessing ramparts and ditches in good repair, if out of date, and exercising no small influence upon the course of future campaigns upon Italian soil.

The types of the latter strongholds vary in strength, trace, and size, but they all possess the usual characteristics of fortresses of the age to which they belong, namely, a multiplication of works accumulated upon the enceinte, instead of the present plan of detached forts determined by the power of rifled artillery, in order that towns may be protected from bombardment, arsenals and stores from conflagration.

In the important question of national fortifications the most advanced school of military writers on the Continent have dogmatically determined that in no way whatsoever should fortification in general, and permanent fortification least of all, have the right or the power to arrest the regular course of a war resolutely and vigorously conducted, with one proviso only, that the assailant be sufficiently armed.

Everything tends to show that it is the *Massenschlacht*, or shock of armed masses, which will furnish the military solution of future campaigns.

Three types of fortified works are, however, permissible: first, barrier forts such as the Italians have constructed on their Alpine threshold; next, maritime seaports for the protection of commerce, dockyards, arsenals, and war-fleets; lastly, a few great and strong fortresses in the interior, not demanding excessive

garrisons, protecting magazines and strategically well-placed to form a *tête-de-défilé*, or command some great natural barrier or important point.

Modern constructive energy in Italy may therefore be said to have been directed on orthodox lines, but what of those "strong places" which are neither of modern construction, strategically well placed, nor suitable in any other respects for the fulfilment of their recognised *rôle* to-day, since their very *fons et origo* are traceable to a period of almost remote antiquity?

The strong places mentioned above do not exhaust the list of Italian towns surrounded by what may be termed battlements rather than fortifications. Almost every town of importance has a girdle of defence in solid masonry, but in all cases uncovered by glacis or blindage, and open to direct as well as curved breaching fire.

Again, there are ideas prevalent in Italy with regard to the *rôle* of fortification which are certainly not universally accepted. For instance, the author of "Appunti sulle Nostre Condizioni Militari," propounds the necessity for the creation of "punti di sicurezza," or in other words places of refuge, where the army may be "reorganised, reanimated, and not only be able to assist in the defence of the entrenched camp, but in a short time again to take the field."* We have already

* P. 107: "Necessarie per raccogliere gli sbandati ed i corpi chi potessero essere dispersi dopo gravi disastri; trovardo in esse i mezzi di riparare e rinnovare i loro materiali, di mettere al sicuro gli ammalati ed i feriti, di rannodarsi riorganizarsi, rianimarsi, e non solo concorrere alla difesa della piazza stessa in cui si trovano, ma rientare in campagna."

seen that Bologna is semi-officially proposed as one of these "points" of such very doubtful "security;" others may be rendered probable in an emergency by the power already noticed of constructing mobile fortresses which the defence possesses.

Here, then, are two points which require some attention—the prevalence of places of antique type and trace, and secondly, the expressed intention of creating places of refuge for a beaten army in the field.

What powers do these ancient fortresses possess? How long and in what manner can they resist a modern army?

In considering this matter we must discard all question of an additional girdling of field forts at the outbreak of hostilities, for any defensible position may be fortified by such methods. It is the actual intrinsic worth of these places which demands investigation.

In a few cases, such as Verona and Bologna, there is a girdle of detached, or rather advanced, works, but in most instances the fortified towns of Italy rely, as they have always done, on an enceinte of varying trace, and in different degrees of preservation, the plain bastion being the most usual example.

One advantage they certainly possess, and this is that they are defensible against a *coup-de-main* to a greater extent than modern earthworks, if only the main ramparts are in good preservation.

This is no mean advantage, for their *rôle* is likely to be more tactical than anything else, and the aggressor will look to sweeping them out of his way on the crest of an overpowering wave of invasion rather than to

losing the dash of the attack by preparing methodically for a long and desultory siege.

Occupied by an enemy not driven from the open country they must be approached with caution, for battlements and buildings of the old type in Italy are massive in comparison with the lath and plaster erections of a modern European town; every palace, convent, and villa is capable of being made a solid and defensible post of the very first order.

A half-hearted bombardment by light field-guns, followed up by an assault ill-prepared and supported, might have very disastrous results, for the defence would probably be found uninjured by the preliminary cannonade, and perfectly able to resist attack.

On the other hand, modern artillery combined with infantry rifle fire, offers a means sufficiently rapid and efficacious for rendering the defence of the enceinte of these ancient fortresses impracticable.

In the cases where the fortresses in question are defended by a ditch of any value, its width and the lowness of the counterscarp will still allow a flat angle of descent for curved breaching fire,* and the effect of such fire will be proportionately increased.

For the destruction of the escarp a horizontal and two vertical cannelures must first be made by cannon fire. The height of the horizontal cannelure depends upon the profile of the ramparts; generally it is one-

* For details on this subject see "The Siege of Strasburg," by General Von Decken, the German Artillery Commandant. Mittler. Berlin. Also a study on "Curved Fire," by General Count Bylandt-Rheidt. Kleinmayr. Vienna.

third of the escarp, but it may be even placed at half this height, with shells of equal bursting effect to the 15 c. cannon. Supposing the batteries of the attack established from 800 to 1,500 mètres from the fortress, there would be no difficulty in effecting a breach by this method, while a shrapnel fire by night, infantry fire by day, and any partial bombardment of the city that might be rendered necessary, would render all repair of the damage out of the question. When the escarp has been brought down at the conclusion of the breaching fire, a few more shots must in all cases be fired, for the masonry is generally old and strong, and would form compact blocks in the ditch; the earth remaining must therefore be brought down with a rush to render the breach practicable for assault.

Again, before the completion of the vertical cuts, some shots must be fired at that part of the escarp which is doomed to fall, in order to break it up.

In the case of a few of the older Italian strongholds we find a plain wall with inconsiderable earth backing. In this case the vertical cuts may be dispensed with, particularly if there is much vertical dispersion in the projectiles employed.

In all cases the assailant should have tables at his disposal giving the penetrative force corresponding to the angles of descent at different ranges and for different charges, otherwise it would be more difficult to immediately seize those positions most suitable for the batteries.

With regard to the time that these operations would take, it may be mentioned that at Strasburg the breach on the right face of Lunette 53 took four days to

complete (14th to 17th September). About 1,000 rounds were fired, each gun discharging from 50 to 70 rounds per day of 12 hours (7 a.m. to 7 p.m.). This is by no means the best result possible, for unfavourable weather and want of training of the gunners delayed the work considerably.

The second breach, that on the right face of Bastion No. 11, took only 18 hours to complete; 600 rounds were fired, or from 6 to 7 per foot of escarp destroyed.

The method of obtaining the range in this case has been described by General Von Decken as follows:

"The distance of the batteries from the work being known from the map, and profiles of the fortress being at hand, the amount of charge, etc., due to the required angle of descent could be found from range tables.

"A visible point of the work was first selected, and a number of rounds fired to find the point of mean impact of the group.

"By consulting plans of the fortress data could be obtained by which the necessary decrease of elevation of the gun and deflection could be calculated, so as to hit the part where the breach was to be made. In this way the point of mean impact of the first group of hits was transferred to a terminal point of the horizontal cut in the case of Lunette 53, and to the face of the sluice on the other.

"Having thus commenced the starting-point for the breaching at one end of the horizontal line, the point of mean impact could subsequently be transferred to the other end. . . . In the case of Lunette 53 the distance was 910 yards, and the elevation required 7⅛°; the guns

were laid with quadrants, and vertical cuts were not required. The breach had a slope of 35°, and required only a few more shots to have been practicable.

"In the case of the bombardment of the sluices the inaccuracy of the maps was rectified by the local knowledge of a Baden officer; neither of the sluices could be seen from any part of the lines of the attack, but a turret was taken as a datum-point, and from firing at this the point of mean impact of the group was determined for each gun. . . . By applying the necessary corrections to the elevation and deflection the point of mean impact was transferred to the middle of the face of the turret. The lines of fire on the turret being determined in this manner, calculations were made, based on the drawings of the fortress profiles and on local knowledge, for transferring by corrections of the elevation and deflection these lines of fire to a point on the sluice just above the water-level of the ditch. The middle of the face of the turret being a fixed point in the plans of the fortress, the distance of any part of the sluice also shown on the plans could be determined from it. Consequently a calculation could be made as to what amount of decrease of elevation and what amount of deflection would be necessary for the point of mean impact to be transferred from the middle of the turret to the middle of the sluice."

If these things were possible at Strasburg it will be palpable enough that the ancient works of fortification in Italy, of far inferior technical worth, offer by so much the more false points of strength and support for an army in the field, and can be rendered untenable in a

very short space of time if attacked on the lines approved by modern practical science.

We have put forward these technical details in order to convince non-military readers that modern science commands a fertile source of ever-increasing power in the offensive action of rifled cannon, and that trust confided to any but absolutely first-class defensive works will probably be misplaced.

What then of the second distinctive feature, the expressed and reiterated intention of placing the honour of the army in the safe keeping of permanent or semi-permanent places of refuge ?

Such ideas are perhaps conventional, and in keeping with a certain class of current ideas on the subject, but they are false and dangerous nevertheless.

To begin with, an entrenched camp must be of great size to play this *rôle*, given the effectives of modern armies, and must be able to shelter hundreds of thousands of men with all their impedimenta. With an increase of the ground fortified, not only must the normal garrison be large, but the very difficulties of the defence will proportionately increase in geometrical progression.

It is true that the possibility of containing a hostile pursuit consists in the existence of a barrier of a certain extent capable of arresting the hostile advance for a certain time, but the existence of such a fortress barrier is absolutely distinct from the reorganisation of an army beaten in the field. The fraction of an army is for the other fractions the best of all bases.

When an army allows itself to be invested, the

initiative passes to the side of the offensive, which is thenceforward able to act decisively when and where it pleases, and successfully oppose all attempts to break out.

The conditions are so favourable that the invested army will require great numerical superiority to break through the girdle of earth and steel which surrounds it.

Is this the true teaching of history, or is it not?

We must go back to the time of Frederick to find an epoch when fortresses displayed every virtue belonging to them, energetically resisting when left to themselves, and affording tactical assistance to field armies when an engagement took place in their vicinity. Yet even during the Seven Years' War, when fortresses displayed their full strength, we find that at Prague, Torgau, Minden, and Breslau, the armies seeking the protection of the walls of the fortresses suffered defeat.

During the wars of the Empire, again, the retreat of Wellington to the lines of Torres Vedras is the solitary instance, unique in every respect, of a great leader taking refuge successfully behind walls and parapets. Even in this case it was practically a retirement to form a junction with fresh forces, since England was mistress of the seas.

Sieges there were indeed, long and bitterly fought out, but the war followed its course whether the fortress capitulated or not.

Napoleon, as Emperor, never besieged, invested, nor allowed himself to be invested in a fortress. Why was Olmutz disregarded in 1805? Why did the *débris* of

the Prussian army after Jena pass by the strong places on the Elbe? Why was the camp of Drissa disregarded in 1812, Magdeburg in 1813, and the Rhine fortresses in 1814? Simply because long training in the art of war had deeply ingrained the spirit of the offensive in the first leaders of the day, and had led them to seek success, taught to their cost by the master mind of Napoleon, exclusively in celerity of operations and in the art of beating the enemy in detail by rapid offensive movements.

Again, do the campaigns of 1848 and 1866 in Upper Italy cause us to reconsider the question? They simply call to mind that maxim, as true to-day as when it was written, that "Strong places commanding strategic barriers, such as entrenched camps, groups and quadrilaterals commanding an entire region, *are not places of refuge*, nor is it their object to defy investment. In case of necessity the places can enter into the plans of the general, but their own security must in no way be made to depend upon the presence of the field army. They should furnish a means of gaining time necessary to give battle under better conditions, more equal, and if possible, with numerical superiority. If fortresses cannot fulfil this *rôle* they become infinitely dangerous, and it would be better to raze them to the ground."

Again, in 1870–71, it seems to have been forgotten that the passive strength of the fortresses should be utilised for the benefit of the active *rôle* of the army. The reverse took place, and the campaign resolved itself into a series of struggles for the possession of two great fortresses, Metz and Paris.

As regards the case of Metz, a German staff officer writes in a *Beiheft* of the *Militär-Wochenblatt* as follows:

"From the situation in 1870 this one fact is evident; after its retreat to Metz from the 6th to the 10th August, the Army of the Rhine first resumed contact with the place on the 11th August. The fortress attracted to its walls all the parts of the army, deployed on a vast front, and caused them to be concentrated in enormous masses on its east front.

"Security! it appeared only possible to find it under the protecting walls of the fortress; so much so that the German videttes followed at the heels of the French corps with impunity and watched their every movement. This power of attraction was so great that the whole line of the Moselle above Metz, the whole of the ground to the south of the town between the river and the Seille, remained unoccupied. The army was concentrated as for a battle, which it had no intention of fighting, and it suffered all the inconveniences of this concentration when it would have been so highly advantageous to have occupied a broader front. If these incomprehensible tergiversations are to be attributed to the irresolution of the commander, it must also be admitted that the proximity of the fortress contributed in prolonging this state of irresolution. An incompetent and irresolute general will always find his fanciful projects and half-measures influenced by so important an object as a fortress, and this in a greater degree as he approaches its walls. The place appears on the horizon as a harbour of refuge in the open sea, which a bark that has lost its bearings, compass, and chart,

makes for with all sail set in very despair. And when the army has escaped into this chimerical harbour of refuge it forgets during precious hours, and this for objects of relatively insignificant importance, the principal, the essential. The difficulties which such a concentration entail, from the point of view of provisions, installation, ambulances, means of communication, maintenance of order, etc., etc., absorb, drain completely intellectual forces which might have been directed to the profit of the *ensemble*, and constantly exerted to gain the general object of the moment. All these difficulties must be immediately surmounted; the question is urgent, the fortress is there, and for the moment is a guarantee against risk; it is only when these questions of detail are settled that the general situation is examined afresh."

The compensating advantages of a refuge behind the walls of a fortress have, in truth, an existence only in the imagination.

Experience has proved that all ideas of paralysing a more considerable army are baseless, while the time supposed to be gained for reorganisation belongs equally to the investor, who can better his condition daily, and prevent the equilibrium being ever restored.

In a sortie, offensive action necessitates tactical deployment. This is in itself a difficulty, and under favourable circumstances cannot surpass a rather limited breadth of front; so that a part of the invested force remains inactive, or the whole is engaged successively.

The superstition of considering a sortie complete if a mere breach is made in the assailants' lines is absurd; there is no real success unless the remaining portions of

the lines of investment have in turn to be abandoned. In short, a victorious battle can alone secure liberty of operations to the invested forces, and the result must affect the entire army of investment.

A mere breach in the lines, and an escape of the invested army, is realisable only on a very limited scale; all such successes may be put out of the question for a great modern army.

The enveloping character of the investor's lines makes no local successes of the invested force decisive, and the mission incumbent on the invested army of pushing home a successful attack is thus seriously compromised at the outset.

Taking all these various factors into consideration, we must disallow a shadow of reason to the modern mania for places of refuge, persuaded that their utility is not established by historical teachings, and that field armies may too easily contract within their pretended refuge the fatal germs of strategic death.

Let the Italians build their entrenched camps if they are so minded, but let them inscribe over their portals in war time the words of Dante: "Lasciate ogni speranza voi ch' entrate." It is a maxim of Napoleon's that, "La fortification peut, entre des mains habiles, être le moyen de faire fructifier un capital moral, bien assis et solide; elle est absolument incapable de le reconstituer quand il a été entamé, et encore moins de le créer de toutes pièces quand il n'existe pas, ou quand il n'existe plus."

These words sum up the whole question netly and concisely.

Given, however, the existence in Italy of one or more of these vaunted places of refuge—and when the Italian sets his mind upon an object it is difficult to dissuade him from the pursuit of it—it remains to determine the best methods for an assailant to grapple with them and other similar works of fortification.

Briefly, then, the aggressor must put up with an increase of his impedimenta, must mobilise his siege parks at the very outset of hostilities, and strive in every method suggested by modern science to gain the full effect from the power of rifled artillery and rifle fire.

The army of operations must possess in all cases a type of gun that will ensure superiority of fire in the field, capable of throwing powerful shells with high angles of descent in order to search out the blinded cover that may be expected even in field entrenchments of the future.

As far as those projectiles are concerned which are deficient both in penetrative power and capacity for bursting powder for destroying entrenchments of even moderate strength, their employment will not seriously incommode the defence.

Besides an ordinary and powerful type of gun, the siege train for each army of operations should include from 16 to 24 heavy pieces worked by some 2,000 artillerymen.

Speculation as to the possibility in the near future of more surprising results to be obtained by the bolder handling of infantry against great fortresses, launches us at once into the boundless regions of hypothesis.

Since, however, some Italian strongholds—the capital in particular—have something to fear from such action, we draw a few applicable paragraphs (to show the tendency of advanced schools of military thought in Germany) from Colonel Boguslawski, who has broached the subject in "Die Hauptwaffe in Form und Wesen."

"Infantry," he writes, "will no longer be reduced as in former days of fortress warfare to direct its fire exclusively against the sap-heads of the besieger, or the embrasures of the ramparts, in order to harass and decimate the artillerists.

"Its *rôle* will be of a more extended nature. It will be able, by combining its fire with that of the siege artillery, to assist in sweeping the ramparts and to render them at times untenable by the garrison.

"This employment of infantry fire seems destined to give important results against detached forts, and more especially so against isolated works. It will nearly always be possible to surround such works on two or three sides by large detachments of infantry which will rapidly obtain cover. If this infantry can be placed in such a manner as to be able to enfilade the prolongation of the faces, the effect of its fire will in great measure surpass that of Vauban's ricochet fire, and will with far greater certainty oblige the garrison to take cover. In many forts hollow traverses absorb the greater part of the available space, and fire can only be returned from the covered way or from additional trenches. A body of troops stationed in the prolongation of the face of a work will be able to deluge its

entire length with bullets if they fire at two or three elevations according to the length of the face.

"Four companies of 250 men each distributed round a fort will be able to discharge into it 200,000 bullets in the space of a few hours. Besides enfilading fire, the angle of descent of the trajectory—still retaining considerable penetrative power at 1,500 yards—will enable the attack to direct straight on the parapets of a fort a curved fire causing enough annoyance to stop all movements of the garrison on the ramparts, and taking in reverse the defenders of the gorge even over the central traverses of the capital, when such exist.

"At the *début* of the attack of large places with entrenched camps, the *rôle* of infantry will be still more considerable.

"The detached forts which surround such places have to be connected in time of need, by lines of field entrenchments and batteries of position. The besieger, by appearing rapidly before a place and by seconding the fire of his first siege batteries with a violent infantry fire, will be so able to command the ground between two or three forts that it will be impossible for the besieged to establish or to strengthen his intermediate lines. Under these conditions the besieger will perhaps be able to penetrate by main force across the line of exterior defence and completely surround one of the forts. It is in this attack of intermediate lines that the employment of combined artillery and infantry fire at long ranges seems to be an innovation both fortunate and practical. It is, so to speak, in a larger scale the reproduction of the ordinary conditions of war in the

field, a violent fire disorganising the defence and preceding the attack."

The conclusions we arrive at from a consideration of the fortified system of Italy are the following:—

The hill forts are well built, and capable of successfully filling the *rôle* assigned to them, which consists in delaying the advance of the enemy for a certain time that may be approximately calculated, affording at the same time a solid support for the Alpine troops, and other forces operating in their vicinity, whether offensively or defensively.

Secondly, the fortifications of Spezia and Taranto, and, in a minor degree, of Genoa and Ancona, afford good bases as regards the former points, secondary places of temporary shelter as regards the latter, for the war-fleets of the kingdom. The great ironclads may by their help not only give a good return for the money expended on them, and a good account of roving hostile cruisers, but may also assist in offensive operations against the enemy's coast by bold and rapidly-executed offensive movements, planned and carried out in conjunction with the land forces.

As for the semi-permanent entrenched camps, whether existing or yet to be constructed, we have seen how dangerous they may become for an army confiding its honour to their fatal shelter, and what great advantages the investor of such places must possess.

Lastly, there are these other antiquated strongholds which stand condemned by the very dates of their construction; if reckoned as fortresses by the

defence, they may produce effects in future campaigns not all commensurate with their intrinsic demerits.

Taking the fortifications as a whole, they neither form a perfect system of national offensive-defence—such as those of Germany are called in the ungainly parlance of dogmatic military writers across the Rhine—nor a first-class defensive deployment such as those of France. They are inadequate and imperfect; but their very imperfections combine some points of merit which an invader would certainly be rash to disregard.

CHAPTER VIII.

MOBILISATION.

The Three Stages—Preliminary Concentration of Tactical Units—The Act of Mobilisation—Concentration of the Infantry, Cavalry, and Field Artillery Regiments—Transport of Reserves—Transport of Accessory Services—Complicated Mechanism—From the 1st to the 5th Day—6th Day—7th to 9th Day—10th Day—11th to 14th Day—15th to 21st Day—Practical Regulations—A German Opinion—Probable Rapidity of Concentration in Strength—The Requisition of Horses—Foreign Purchase—Italian Breeds in the Past—Number of Horses, Mules, and Donkeys in the Country—Disadvantageous Conditions of Early Rearing—Importations—Agricultural Requirements—Height of Horses for Government Service—Forage Rations—The Stud Farms—Census of Horses in 1873—Remount Depôts—Viciousness and Want of Preliminary Training of Horses—Hardiness of the Breeds—Limited Action of the Remount Depôts—Practical Needs of Mobilisation—1866 and 1877—The Supply for the Cavalry—The Artillery—The Train Companies—Difficulties of the Question—Unsatisfactory State of Affairs.

The act of mobilisation includes a first, second, and third footing, the latter being the complete war establishment. In the first footing, or preparatory stage, telegrams are despatched to the various classes of reserve men to hold themselves in readiness to rejoin, while infantry corps make all preparations for immediate

departure on a peace footing. In the second stage, the regiments of infantry are concentrated, wholly or in part, on the threatened frontier, the three arms being raised to their full war strength, but the establishment of the batteries including only from 4 to 6 guns per battery, with horses and material in proportion.

Army corps and divisions are concentrated tactically complete. The units from highest to lowest retain their commanders.

It is a great advantage for an army, especially in its first critical engagements, if the leaders in war have been equally leaders in peace. Not only will the general in command be able to rightly estimate the exact value of each unit of the force under his command, the aptitude of subordinate leaders, and the sentiments of the men, but these latter in their turn will reciprocate the kindly feeling engendered by comradeship in camp and bivouac, and will repose that confidence in their chief that is the foundation and first essential of success. This is the state of affairs that may reasonably be expected in Italy once the concentration is an accomplished fact, and it will have this result, that the utmost effort that is demanded from the army will be cheerfully and enthusiastically responded to. We have already seen that the influence of particularism and the antipathy of races have been combated, undermined, and almost annihilated by the peculiar system of recruiting employed.

The army forms one homogeneous whole.

The act of mobilisation includes briefly :

(*a*) Concentration of the infantry corps on the

threatened frontier on a peace footing, to take place within forty-eight hours of the receipt of the order.

(*b*) Concentration of the cavalry regiments and field artillery batteries on a war footing, calculated for the 9th and 10th days of mobilisation.

(*c*) Transport to their respective corps of the various classes of reservists from the military districts, commencing on the 9th and ending on the 14th day of mobilisation. It is very probable that this dangerous period may be considerably reduced by the new regulations which have reformed the machinery of the districts. We cannot, however, accept any experiments on a reduced scale as proof positive that the organising capacity of the districts is sufficient to cope with the difficulties of the situation, for the chief friction consists not so much in the equipping and arming of so many men per diem as in the prior and subsequent endless traffic on the railways owing to the coming and going of so many batches and classes of reserves. No peace experiments, no matter how well planned and executed, can give the remotest conception of the *débâcle* that ensues in every department of a State upon the outbreak of war with a neighbouring foe.

(*d*) The last phase consists of the transport to the point of concentration of the accessory services, completed by the 22nd day.

The question of a preliminary mobilisation of the reserves of the infantry corps, *followed* by a concentration on the threatened frontier, has been frequently and warmly discussed in opposition to the existing plan. The scheme will not admit of alteration, how-

ever, until the social and political condition of the country enables the Government to reform the recruiting system, safely and without risk. The present plan of a primary concentration of the infantry, followed by the influx of reserves, is rendered necessary by the geographical situation of the country, the paucity and inferiority of good communications by road and rail, the difficulty of transport, the scarcity of material, the military preparedness for war of Austria and France, and lastly, by the admitted need of concentrating the forces of the country in the valley of the Po, from whatever direction the danger threatens.

The Italian system of recruiting and of mobilisation does not commend itself on account of any particulars of military merit; on the contrary, it is both unnatural and anomalous, but it is the best possible for the moment for Italy.

Mobilisation is ordered by Royal decree; the order for mobilisation, flashed through the country, is the signal for the immediate execution of detailed plans arranged during times of peace.

The machinery for mobilisation is not remarkable for simplicity; it is, perhaps, the most intricate and complicated war mechanism in Europe.

We shall briefly trace the salient features and most important steps in connection with the matter.

1*st to* 5*th Day*.—On the receipt of telegraphic orders the chiefs of the military districts forward the calls to the reserve men with the utmost despatch. There are three distinct calls: the first to the classes of the first category of the active army; the second to the 1st and

2nd classes of the militia; and the third to the classes of the second category of the active army. The civil authorities assist by forwarding the order to mobilise and the separate calls into remoter villages and districts, while order is kept by the *carabinieri reali*, drafted in to the centres of activity for this purpose.

On the departure of the infantry regiments there remain a number of points of importance left unguarded, except perhaps by weak squads of *carabinieri reali*. It rests with the municipal authorities, under these circumstances, to make the necessary calls upon the communal militia, in order to satisfy local requirements, but the calls of mobilisation naturally override those of the municipalities.

The method of concentration employed makes it a certainty that the railway companies will be hard pressed in their most active efforts to satisfy the pressing and countless requirements of the situation.

During the first five days the main friction on the railways will be caused by the passage of the infantry regiments on a peace footing, as well as of the always-mobilised Alpine companies not belonging to the threatened sections of the Alpine zone. The outbreak of war is, however, in these days, so soon and so universally known that only the strictest regulations can prevent a break-down from the mere stress of passenger traffic alone. In order to lighten the burden of the railway companies during this trying period it has been laid down that all bodies of infantry less than five days' march from the point of formation of their respective divisions shall reach their destination by march route.

The chief supply of carriages for the heavy train of the army is stored at Plaisenza, Verona, Mantua, and Bologna; each military division is also possessed of a depôt of carriages, camp equipment, etc.

On mobilisation, or before, if it can be done without notice, all serviceable material is collected at or near the railway stations, for transport, as the occasion may demand.

6th Day.—The reserves of the youngest class of the infantry now begin to put in an appearance, and the real work of the districts begins in earnest.

The 4 classes of the cavalry reserves, 2 of the artillery and engineers, and 9 of the coast companies, hospital corps, and administrative services also arrive on this day, and it may readily be understood how difficult it is to maintain order and calm in such a number of excitable elements.

The first days of mobilisation are critical for all continental powers, but they are peculiarly dangerous for Italy. From the 1st to the 10th days of mobilisation an active and well-prepared enemy, strong on the seas, has opportunities for action not to be despised. The fighting portions of the infantry regiments are concentrated on the threatened frontier at the points of reunion of the larger tactical units; the military districts are harassed by the simultaneous crowding in of various classes of reserves. Cavalry regiments are not yet mobilised; field and garrison batteries remain unprotected, completing their respective formations to a full war footing. Everything favours hostile action: the simple destruction of one bridge or tunnel on the trans-

Apennine lines may have consequences of the utmost importance; the capture of a few batteries or the break-up of a district would be equally pregnant with moral results demoralising for the defence.

During the 7th, 8th, and 9th days the 2nd, 3rd, and 4th classes of the first category arrive.

10*th Day.*—Transport of cavalry corps with war effectives commences. Field batteries begin their concentration, but in second formation only, *i.e.*, with 6 guns per battery. The engineer brigades of corps with the company parks and telegraphic sections also begin to move, and the train detachments join the units determined.

11*th to* 14*th Days.*—The last reserves should join their regiments by this date. Transport then begins of the sanitary and subsistence sections. By the 14th, then, we may conclude that the fighting forces of the Italian army are mobilised and concentrated—ready, in short, to offer a real and determined resistance to all hostile attacks.

15*th to* 21*st Days.*—The whole concentration is concluded at the end of the third week of mobilisation by the transport to the front of the impedimenta proper, namely, the bridge equipment, the heavy artillery, the engineer parks, train and accessory services. Supposing the active assistance of the mobile militia divisions required, their presence could not be reliably calculated upon before the 22nd and 23rd days.

Throughout the whole period there is a steady and continued strain upon the resources of the railways, and a very heavy tax upon the energy of the personnel of

the lines. For the first few days there are the various infantry corps to be immediately forwarded to their destination, combined with a probable vast increase of passenger traffic so productive of confusion. From the 3rd to the 9th days there are the innumerable detachments of reserves flocking in to the districts from all parts of the surrounding country, and being again despatched in larger bodies to rejoin their regiments. Later on, again, there are the cavalry, artillery, and engineer brigades, closely followed by the cumbersome and weighty impedimenta of a modern army in the field.

The machinery is complicated in detail, but every effort has been made to cause the wheels within wheels to work smoothly and well. The date for the transport of this or that unit, the line it is to take, the collection of stores and provisions, forage, water and billeting, the point of concentration for the larger units, together with details of all kinds too numerous to mention, have been planned and prescribed, in case of war with the continental neighbours of the peninsula. With all this, however, we seek in vain for any exaggerated systematising that we sometimes find to be the bane of a highly scientific military organisation; the regulations and methods of mobilisation are, under the circumstances, remarkable for shrewd, clear, practical common-sense. A steady adherence to this admirable principle may render possible the satisfactory solution of a difficult problem.

A writer in the organ of the German staff, the *Militär-Wochenblatt*, roundly asserted three years ago

that only six army corps, or 195,000 men and 240 guns, could be concentrated in the valley of the Po in three weeks.

At the present date (1883) 323,000 men in first line can be concentrated on any threatened land-frontier of Italy within fourteen days of the order to mobilise. This result can be attained while leaving one army corps for peninsular defence, and excluding all question of the mobile militia divisions and territorial militia.

By the aid of the new organisation this number is increased to 353,000, while two army corps participate in the defence of the peninsula. It will presently be demonstrated that this number is a sufficient guarantee for the integrity of Italian territory.

If it is possible to concentrate the material of the army in the valley of the Po it is evident that the full value of such action cannot be obtained unless the horses, indispensable for draught purposes, can be also rapidly mobilised and in sufficient numbers.

The requisition of horses in Italy presents great difficulties on account of the inferiority and inadequacy of the supply; it is perhaps the main obstacle to a rapid and efficient mobilisation of an army in the field.

The electric telegraph and steam-power no doubt are powerful auxiliaries for a watchful Government, alert to the necessity of purchasing remounts and draught animals at the mere suspicion of a diplomatic imbroglio; but other continental States are rightly chary in admitting the principle of free trade in horses when their own forces may stand in need of them for partial or general mobilisation during the course of hostilities. Thus it is

that we have seen on several occasions of late years how the first signs of a coming international breeze are the autocratic commands emanating from the Chancelleries of one or another European power, prohibiting the export of horses—a deed perfectly justified by the military situation, and creating additional difficulties and disappointments for a State relying on a neighbouring equine contingent. In case of war with a power inferior on the sea, Italy requires time only for the supply to equal the demand, but no absolute dependance can be placed upon the probability of such a state of affairs; the only real reliance must be on the home supply.

In former years Italy was justly celebrated for the possession of unequalled breeds of horses; the types varied, but those in most request and of best repute were bred in Friula, Polesina, Tuscany, the Roman Campagna, Calabria, Sicily, and Sardinia. The deterioration of horses in Italy during the last three centuries has been a matter of notoriety. It is true that the types mentioned above retain their individuality; but money, time, and patience are required to create a satisfactory state of affairs by the infusion of new blood.

There are in Italy some 570,000 horses, 160,000 mules, and 370,000 donkeys; taking these figures as they stand, and noting that on mobilisation the field army requires only 43,768 horses and 16,192 mules, it would appear at first sight as if the military contingent should be easily contributed. A very brief inquiry into the matter will afford convincing proof that the reverse is the case.

In the above total are included foals and horses under five years of age (being a quarter of the whole number), those over age and unfit for work, those unfitted by make, shape, and height for military service, stallions, brood mares, post-horses, etc., etc. Again, foals in Italy are reared and trained under such disadvantageous conditions, that for every 600 born only 100 reach the age of five years fitted in all essentials for service with an army. The maximum number available for military purposes is about 65,000. Large numbers of horses of the very best blood are annually imported into Italy by the richer classes, and the result is that Italian officers, taken as a body, are well mounted; but as yet the Government has sparingly contributed towards improving the country-breds, and bettering the class of animal taken for army work.

The agricultural requirements of the country cause young horses to be put to work long before they are physically well-developed; a two-year-old at heavy draught work is by no means an uncommon sight; and these causes produce their natural results. Out of 100 horses brought up for purchase by the remount committees, all are rejected on an average, save a bare 5 per cent., and the Government is consequently reduced to purchase in foreign markets.

Officers, in addition to the forage ration, receive an annual allowance towards the expense of purchasing, and are also permitted to choose their horses at the Government rate from the stud farms.

Mules are used in the brigade of mountain batteries

and for draught in the heavy trains of the army. Both supply and quality are satisfactory.

In the cavalry regiments, from Nos. 1 to 10, the height of the horses is from 1·52 to 1·60 mètres; in Nos. 11 to 22, from 1·46 to 1·54 mètres; the artillery and train horses stand between 1·50 and 1·54; mules average 1·42 mètres.

The forage rations are regulated as follows:

	Hay.	Oats.	Straw.
Station . . .	6 kilogs.	3 kilogs.	5 kilogs.
Cantonment . .	6 „	3·500 kilogs.	5 „
On the March .	6 „	4 kilogs.	5 „

Horses for the army are obtained:

(1) From the Government stud farms.

(2) From the remount depôts, after home purchase, at a price not exceeding 700 lire, of horses not over five years old.

(3) By foreign purchase, the price varying according to the state of the markets and the requirements of the situation.

There are at present six Government stud farms, or establishments, at Ferrara, Santa Maria di Capua, Reggio, Pisa, Crema, and Catania. The first four of these farms are under field officers, the others under captains, but the whole of the stud farms are directly controlled by the Minister for Agriculture.

There are at these establishments about 300 stallions and some 6,500 brood mares, annually producing 3,000 foals on an average, or 10 foals a year for each stallion. The latter do not correspond with the exigencies of the

situation in blood, age, or number, and consequently the foals are comparatively few and weakly. Each stud farm forms a territorial centre for the conscription of horses on mobilisation, assisted by, and working in conjunction with, the machinery of the military districts. In 1873, a commission of officers and civil servants took a census of horses throughout the kingdom. The numbers in this year were 552,639 in all, territorially distributed as follows: Ferrara, 62,133; Santa Maria di Capua, 125,675; Reggio, 63,367; Pisa, 118,445; Crema, 84,139; Catania, 98,880.

There are two remount depôts, one at Grosetto, the other at Persano, for the purpose of developing and training young horses between the ages of three and four, purchased for the army by the remount commissions. There is no limit fixed for the course of training; as a rule, two years prove sufficient.

A considerable improvement naturally takes place in the physical development of the young horses during their stay at the depôts, a reasonable course of good grazing, combined with an open life, working wonders after the harsh treatment which the young animals have probably experienced beforehand. Although the maximum price of a horse intended for the depôts has been fixed at 700 lire, it is calculated that on the average the expenses connected with each animal, including his original cost price and his keep at the depôt, only amount to 400 lire.

It must be borne in mind, with regard to Italian horses and the general appearance of an Italian cavalry regiment, that the main obstacles to efficiency consist

in the viciousness and want of preliminary training of the young remounts. In England, horses are drafted to cavalry regiments and batteries already more or less broken in; but in Italy this has to be done principally by the very men who have themselves but a short time in which to become useful horsemen. If, however, the general appearance of horses in Italy—their apparent want of strength and bone—gives an unfavourable impression, it must be remembered that they possess one good qualification for campaigning purposes. The rough, wild life they so often lead before being taken for saddle or draught, the want of care of the foals and the consequent excessive mortality among the weakly animals, has rendered many of the breeds—that of the Roman Campagna, for instance—robust and hardy to a degree unknown in England; and their aptness for military purposes would perhaps be more appreciated in the course of a bitterly contested campaign than during a holiday review in the Via Nazionale, before the critical eyes of foreign observers.

Although the remount depôts are useful in their way, as being a step in the right direction, their action is so limited that the 500 horses they could furnish on mobilisation would be only as a drop in the ocean in comparison with the requirements of the situation.

To give some idea of the practical needs of mobilisation it may be mentioned that General Pettinengo, in his account of the administrative services during the Custozza Campaign, in 1866, narrates that from the

25th March till the 4th May, a period of forty days, 24,900 horses were either bought, hired, or requisitioned for the army, and that of these only 16,400 were country-breds. From other sources we learn that the number of horses actually purchased abroad for the Italian Government reached the number of 20,000.

But the events of 1877 proved yet more conclusively to foreign observers how badly provided for the Italian nation was in this matter. Current political events had caused a corresponding feverish anxiety and activity to be manifested in all military departments, and, although serious complications were staved off, some uncomfortable disclosures were made.

Taking the cavalry first, it appears that while 15,800 horses were required on mobilisation there were actually fit for service with the field squadrons only 11,604, and of these 3,000 were over fourteen years of age. A clear deficit was thus at once apparent of 6,396 horses in the cavalry alone, the weakest of all the military services of the kingdom. But even these figures do not dispose of the question. It is indisputable by those who have studied the subject that cavalry to be in a fit condition to take the field should possess in peace time not only a sufficient number for the wants of mobilisation, but a *greater* number, equal at the lowest estimate to one-eighth of the whole.

Supposing that all circumstances are favourable, that the horses are well-conditioned and not used up, as has often been the case, by the heavy-handed zeal of an active proconsul in the provinces, that the remounts are well regulated, that the training has been intelli-

gently directed and executed, it will still be impracticable to obtain the desired results unless 18,000 saddle horses are kept up by the field squadrons in time of peace. It is generally admitted that the troop horse is equal to his work for eight or nine years only, or, in other words, up to the age of fourteen. If then the supply of horses is subject to no epidemic, and the troops horses are kept physically fit and in good condition, it will still be necessary to replace an eighth part annually, the proportion greater or less depending upon the more or less judicious system of feeding, training, and stabling.

The cavalry sabre being an expensive luxury for a poor country, and the natural formation of the country not being suitable to its action, it has resulted that this arm of the service is weak and out of the usual proportion admitted for the three arms. Therefore it seems all the more desirable, if the requirements of mobilisation are to be immediately met, that the Italian cavalry should be given every opportunity for making the most of its scanty numbers. The action of horsemen in Italy will always be a question of quality rather than of quantity.

We see, then, that to ensure the 18,000 horses required, it will be necessary for no less than 9,300 to be added to this branch of the service alone, for since 1877 no sufficient steps have been taken to remedy the evil then laid bare.

For the artillery there are 5,000 horses kept up on a peace footing; in 1877 these numbers were found to be available, although it was estimated that out of a total of 6,400 horses connected with artillery services, 1,700 were over fourteen years of age. Both heavy and light

batteries in Italy have 54 horses on a peace footing. For the light batteries it should not be difficult to pass to the war footing of 109 horses, but the heavy batteries, requiring 138 horses in all on mobilisation, would be in a worse plight. To remedy this defect, it has been proposed to allow 68 horses to the heavy batteries on a peace footing, and this reform, like a great many others that commend themselves to the country, is merely a question of time.

The three train companies in each of the 10 regiments of artillery are worse off than any of the other services, as they have but 30 horses on a peace footing, which have to be increased to 540 on mobilisation. The train companies alone will have to be supplied with 16,200 horses in the event of war. As for the depôt batteries, they have no horses at all.

Since 1877 the state of affairs has so far improved that there are now 33,995 horses in the army; as, however, a mobilisation will require 43,768 horses and 16,192 mules, there remains a deficit of 25,965 to be accounted for in case of war, while to thoroughly mobilise the militia no less than 30,000 additional animals will be required, or 55,965 in all.

Even this does not quite exhaust the difficulties of the question, for the formation of two additional army corps will increase by one-sixth the horse supply necessary for the army in first line. With the formation of these two corps, Italy will require a total of 71,952 horses and mules for her active army; 101,952 for her field army and militia.

We have seen that the maximum supply of country-

breds suitable for military purposes does not exceed 65,000, and when we further consider the minimum necessary for the army on a complete war footing, the statement hazarded above, that the inferiority and inadequacy of the supply is perhaps the main obstacle to a rapid and efficient mobilisation, will not appear too strong.

Victory, in modern war, is the product of weight multiplied by velocity.

With these statistics we can understand the desirability for Italy of organising her accessory services with the help of traction engines and mechanical appliances, to take the place of the horses which will only too probably not be forthcoming. Unlike the material of the army, the supply of horses cannot remain concentrated in the valley of the Po in readiness for emergencies. Given the absence of good interior communication throughout the peninsula combined with the great difficulty that is the invariable concomitant of the requisition of horses, we must conclude that unless a large supply is drafted into the country before the pen gives way to the sword, the efficiency of the army will be very seriously compromised.

Lastly, considering the evident gravity of the above situation, we must conclude that the efforts made to satisfy the requirements of the situation by the existing organisation, localisation and sub-division of the stud farms and remount depôts, together with the quality and quantity of their supply, in no degree correspond with the necessities of the case, and that there must be a very radical reform indeed before the aspect of affairs

can be materially altered for the better. The encouragement, improvement, and extension of indigenous production, forms one of the chief problems for Italian Ministers of Agriculture and War. Until the desired standard in supply can be reached, the organisation of the army can have no claim to perfection, for its value as an offensive weapon must be proportionately lessened.

CHAPTER IX.

MILITARY GEOGRAPHY AND NATIONAL DEFENCE.

General Considerations—The Three Great Lines of Defence—Parliamentary Discussions—Interest Evinced in the Question—The Mountain Barrier—The Alps and the Teachings of Abstract Tactics—General Ideas on the Subject—The Italian System—An Instance of the Dissimilarity between the Past and the Present—French Appreciations—Exaggeration—Peculiarity of the Great Alpine Passes—The Manœuvre by Interior Lines—Action of the Attack and the Defence—The Logistic Question—Peninsular Defence in the Interior—Geological Formations and the March of Armies—The Italian Fleet—A Maritime Expedition—Increased Powers for Maritime Offence—The True Lessons from Lissa—Power of France with Regard to the Dispatch of a Maritime Expedition from Mediterranean Stations—Rapid Increase of French War and Mercantile Marine—French Colonial Policy—The Combined Action of Italian Land and Sea Forces—Disbelief in Great Debarkations Evinced in Italy—Rise and Development of the Italian War Fleet—Capital *Rôle* of the Fleet—A Danger for Italy—Naval Construction—Objects of a Hostile Fleet—Bases of Operation—A Strong Defence Possible.

The Alps, the Po, and the Apennines are the three great natural lines of Italian defence. By their nature they establish in great degree the defensive system adopted, in conjunction with works of art and mobile defences.

These three lines define the successive phases of the action of an invading army, no matter from what quarter the danger threatens.

The mere mention of national defence conjures up before the imagination a wide vista of hypothetical day-dreams, and of interesting and important considerations both political and general; but an attempt to give a full account of the thousand and one matters of secondary importance, indirectly connected with the case in point, would extend the subject beyond all reasonable limits.

We cannot avoid remarking, however, that debates in the Italian Parliament, platform speeches, and academic discussions on this head have been remarkable from their perspicacity, lucidity, brilliant and fervent oratory, and rare grasp of facts to an extent that would surprise those who have not followed them. This fact is traceable to the immense interest taken in the question by all ranks and all classes alike, eagerly debating cause and effect of each Ministerial measure or irresponsible suggestion, and vieing in their efforts to assist in the aggrandisement of their beloved country by rendering it secure from hostile attack.

In the remaining chapters we shall briefly consider:

(1) The general question from a naval and military point of view.

(2) The defence of the north-west frontier.

(3) The defence of the north-east frontier.

(4) Peninsular defence.

Particular considerations have regard to:

(*a*) The true worth of the Alpine zone as a national

barrier against invasion, and the general adaptability of the girdle of mountains to the purposes of Italian defence.

(*b*) The possibility of a concentration of the army and in what numbers, in rear of this advanced screen, and the comparative advantages of clinging to the mountains or trusting to action on interior lines.

(*c*) The defensive capabilities of the interior of the country.

(*d*) The practicability of a maritime invasion and the means available to resist it.

Alpine defence is a subject of considerable interest to Englishmen, possessing as they do on the north-west frontier of their Indian Empire, a mountain barrier in some respects similar to that on the north-western frontier of Italy. In both cases the mountain barrier has hitherto proved no insuperable obstacle to a determined enemy, in both cases a more intelligent and united direction for the future must succeed in arresting the impending flood.

Past events have militated against the successful employment in practice of the larger part of the peculiar excellencies of the Alpine barrier, but it was no idle boast of the Italian who wrote a few years ago, "Per noi le Alpi valevano un armata."

Theory agrees with practice in determining that the assailant of a mountain chain has the chief advantage on his side. "With brave infantry and bold commanders," writes Jomini, "famous mountain ranges can generally be forced." Hamley in his "Operations of War," asserts that, "The defence of a long line of mountains is

difficult and dangerous, the defence of a few chief passes equally ineffectual; the best way is to hold the chief passes with advanced guards, keeping the mass of the army disposable at points in rear, thus securing the retreat of the advanced posts, supporting them if necessary, and opposing with a formidable force the first hostile troops that cross," or in other words giving up the whole of the advantages the possession of a mountain chain offers to the defence except that of limiting the enemy to a few and difficult lines of supply. And to what purpose? Solely for the sake of action on interior lines.

Such, no doubt, are the lessons derived from campaigns before the introduction of the breech-loader and the electric telegraph, but does the history of our own times tend to prove the same conclusions?

Even the most advanced school of German soldiers are only now beginning to foreshadow a few of the surprises which the future has in store for us. General Von Scherff, one of the ablest and most concise of the military writers of the day, thus sums up his general opinions on the subject in the preface of one of his later works. Doubtless, he says in effect, the lines and leading principles so brilliantly taught by the wars of Napoleon, remain unquestioned and convincing, but it is equally true that the development given to rapid means of communication; the general introduction of obligatory service; the appearance of thoroughly national armies; the universal adoption of new engines of destruction incomparably more powerful than those hitherto made use of; and the recrudescence of the defensive element which has been the immediate consequence, that all

these causes, in short, have exercised and will yet more exercise a considerable and incontestable influence on the groundwork and established method of warfare. War is undergoing a process of evolution, the art of war has entered upon a new phase. Military teaching, with all respect due to masters and those who have commented on their lessons, must, one day or another, renovate itself, take a fresh inventory of its special province, and establish therein order and unity.

The new ideas must be grafted on the ancient truths, and a broader and more comprehensive synthesis be composed wherein the new arrivals can assume the place and rank that befits them.

General ideas with regard to the Alpine zone are apt to consider it merely as a vast obstacle, delaying certainly the advance of the enemy's troops by forcing them to march on a narrow front in several separate columns, but, by so doing, simply allowing the Italian army to satisfactorily accomplish its mobilisation, and subsequently act on interior lines against the heads of the enemy's columns debouching from the passes. Such, too, were the ideas propounded and advanced by Italians themselves until quite a recent date. The rapid march of events, political and military, has now led them to reconsider the question, and ultimately decide that such views are too narrow for the case as it stands to-day, even if strictly in accord with theoretical teachings.

Their view of the question* is that if the Alpine barrier was too extended to lend itself to direct defence

* Dabormida, "Defence of the North-west Frontier of Italy." Sironi, "Military Geography."

by the small armies of the past, without their falling into the baneful cordon system, it is no longer disproportionate to the heavy effectives of the armies of to-day, and that its defence is the most efficacious means and the least subordinated to incalculable eventualities to guard Italian territory against the superior forces organised in France.

To take one instance only of the difference between the past and the present. In former times armies were enabled by the comparative weakness of their forces to traverse a defile and debouch on the far side in battle order. In the present day only a fraction of the force, or a maximum strength of two army corps, can debouch, as a first échelon, under good conditions for fighting a battle. It will be useless then, as a rule, for an army to expect decisive results from an advance on a single line of communications; his object will be to make headway at every possible point, and then manœuvre to concentrate.

Frenchmen are too prone to disparage the line of argument adopted in Italy, as well as to decry the preparations made for resistance; and when we come to consider the defence of the north-west frontier, it will be seen that while French appreciations are chiefly based upon theoretical suppositions, those of the Italians are more defined and practical, and approach the case on its own proper merits. On both sides, however, ardent partisans have produced exaggeration. It is not uncommon to find military writers in France talking of the ease with which an invading army could force the Italians behind the Apennines; and

the Italians, because they have solidly established themselves on their border line, are prone to leave out of sight the chances of the unexpected happening, which one may declare to be the rule in warfare. For instance, Major-General Araldi, in an article on "Natural Obstacles and Fortifications," in the *Rivista Militare Italiana*,* concludes: "The only logical and acceptable defensive system for Italy is that of a powerful perimetral defence, permanently utilising the various obstacles which Nature has accumulated at the mouths of the various passes by means of simple works intelligently placed. Thanks to such barrier forts, it is possible with a few hundred men in the most important passes, and with a few dozen only on the less important tracks, to arrest the march of the superior columns of the enemy, and hold shut the doors of the country permanently and inexorably." General Araldi is by no means the only Italian who appears to imagine that the Alpine troops are porters stationed at the barrier-doors of the kingdom, and carrying the keys of the gates suspended at their girdles.

But such views are not shared by those in authority, nor does the physical geography of the Alpine passes warrant the sanguine expectations above expressed, for it is a peculiarity of the great passes of this mountain zone that they do *not*, as a rule, lend themselves to Spartan defence by diminutive garrisons, but require, on the contrary, seldom less than from 4,000 to 6,000 men apiece.

* November, 1881.

We see, then, that in this very momentous question of Alpine defence, French and Italian ideas distinctly clash, and it is at once apparent that each is arguing less from a general and impartial than from a subjective point of view.

We must go back, then, to the views we have already mentioned as taught by men like Sironi and Dabormida, and definitely — one may almost say *fanatically* — accepted as the national system, and inquire whether these views are just, or whether better results may be expected from the theoretically vaunted manœuvres on interior lines.

The characteristic traits of the lightning strokes of Napoleon's genius were rapidity and secrecy; they were realisable principally owing to the small size of the armies he so successfully commanded in comparison with the huge masses modern warfare puts in motion, and consequently they are to-day less easily susceptible of realisation. Even directed by such a master hand they failed in later campaigns owing to the methodical plans followed by his enemies from sheer dread of their terrible foe; in earlier campaigns their startling novelty brought to the ground with a crash the laboriously-constructed edifices of his enemy's strategical conceptions.

The breech-loader and the electric telegraph have changed the whole aspect of the question. The force acting on the defensive has no longer the unique privilege of grasping the situation, while the enemy, striving to envelop him, is groping in the dark. Every attack presupposes superiority in numerical strength, the enveloping attack most of all. If then the various com-

ponent parts of the assailant's forces are directed by a single hand, they possess to-day the power of rapidly closing in on their adversary and encircling him in their fatal meshes.

This again seems to be the true lesson of the campaign of 1866; theoretically, Sadowa was an Austrian victory, but by good management and a just understanding of the circumstances of the case, the position of the Austrian army on interior lines was changed to an enveloped position by the combined action of the Prussian forces.

It may be argued that the Alpine barrier, limiting the attack to a few defined lines of march, offers greater facilities for this manœuvre than an open frontier, by enabling the defenders to attack in detail the columns debouching. It is true in a limited sense, but on the other hand the attacking column threatened by the main army can fall back on the mountain zone, establish itself there to resist attack, in fact *reculer pour mieux sauter*, and render the envelopment a possibility for the other columns.

This in particular is one of the points which the exponents of the Italian method, logically reasoning out the "How" and the "Why," are most determined about. They argue that the teachings of abstract tactics, which assert that positions occupied in rear of the mouths of defiles are advantageous, since they permit the defender to hurl his deployed troops against the heads of the enemy's columns while they are debouching in march formation under fire; and, further, that it is still more difficult for them to withdraw without

disorder, that these teachings are only applicable to defiles formed by bridges, streets, or mountain gorges, and that they by no means apply to the accessible slopes of the Alpine ranges at the points where these border on the plains.

The assailant's action would be simple enough if resisted at the mouths only. He would "mamelonner," as Marshal Bugeaud expressed it, the hills flanking the mouth of the pass, and either remain there till it suited his plans to advance, or at once take the offensive with all the advantage of position.

It is ridiculous to suppose he would play into his adversary's hand by permitting other columns to debouch at a great distance apart; he would solidly establish himself in the positions won until a combined advance became practicable.

The administrative difficulties of temporary inaction in such a country would be lessened by the withdrawal for the moment of all but the troops necessary to hold the position.

Under the most favourable circumstances we must conclude that the manœuvre by interior lines is a dangerous weapon for modern armies, and may easily result in great national catastrophes such as Leipzig, Waterloo, and Sadowa.

We cannot dispose of the other side of the question, viz., the advantage of utilising more fully the mountain barrier as determined by the military authorities of Italy, without going into greater details of the proposed arrangements for passive and active defence on the border lines most menaced by the configuration of the

frontiers, or the military strength of the neighbouring nation.

We have seen that the strategic panacea of action on interior lines, a panacea based on far too absolute deductions from the lightning strokes dealt by Napoleon, if it does not stand condemned, must, at all events, be greatly modified in face of the changes wrought by the past few years. But it must not be imagined that on that account we shall *à priori* claim any excellence for the opposite extreme, namely that of the cordon system, more baneful and dangerous if possible than the other; a system to which the many reverses of the Piedmontese and Austrians in the past may be directly attributed.

The true mean lies as usual between the two extremes, and it will be seen that the Italians have not hastily deserted the one to rush blindly into the other.

Passing over the succession of events which led up to the present state of affairs, we may mention one date as the turning-point in the question. In 1859 General Mezzacappo drew the serious attention of the country to the folly of neglecting all the advantages of such a considerable obstacle as the Alps for the panacea of action on interior lines. He proved conclusively the real and solid advantage that would accrue to Italy if she possessed barrier forts in the principal valleys, delaying a hostile advance, arresting the enemy's march in a difficult and sterile country, forcing him to make overwhelming attacks, and thus develop his true plans at the very outset of hostilities.

We shall see presently whether the teachings of General Mezzacappo have borne fruit, and shall merely

repeat here the words used by General Ricci in 1871, that nothing but an aberration of intellect would now allow this capital element of Italian defence to be neglected.

Let those who would speak lightly of a French invasion of Italy calculate the logistic operation of passing 400,000 men with all their artillery, material, and impedimenta through the passes of the western Alps, let them make a computation of the first half-dozen marches alone, and then, perhaps, they will better appreciate the inherent difficulties of the situation, even excluding all question of Italian defence.

The third consideration, that of interior defence, is intimately bound up with the plan of the railway lines, the position and power of the strong places, and the future localisation of the armies of reserve. As far as regards questions of physical geography, it is sufficient to remark for the present that the Po presents the second grand obstacle to an invasion of northern Italy, and that the Apennines form the *réduit*.

Up to quite a recent date it was acknowledged that once these three grand lines forced all further fighting would be useless, unless it was determined to make a last stand at the capital for the honour of the army.

But given the rapid rise of a powerful war-fleet it is felt that the formation of the peninsula is not altogether a cause of despair nor an element of weakness, so long as the ironclads maintain their liberty of action. True, there may be little power of brilliant manœuvres against the enemy's communications, but a tenacious resistance step by step, combined with attempts on the part of the

fleet against the enemy's flanks and rear, may prove more efficacious than is generally supposed. In future years, when the flag of Italy will seek supremacy in the Mediterranean, it is needless to say that this resistance will be both practicable and probable.

War in Italy requires a very intimate acquaintance with the practicability of the country. The agricultural and commercial prosperity of any nation, depending to a great extent upon its communications, is also intimately bound up with the geological formations of the ground, which again influence in no small degree the march of armies and the operations of war. The geological formations which exist in Italy have been among the chief causes for the various strategical combinations which have been tried in the past or proposed for the future. Tactical efforts are equally influenced by the river system, by the close and intersected nature of the plains, by the canals and forests, by the roads, by the character of the habitations and their peculiarities of position and extent. All these details come to light under geological scrutiny, and require very careful study in reference to Italy.

The subject of a maritime invasion calls for a few general remarks. Italy is by no means the only country interested in the practicability or the reverse of great invasions based on the enemy's coast.

It is a theme common enough for press *flâneurs* in all countries to decry the expenditure on the great ironclads of Italy, but from a purely Italian point of view naval construction has worked on the very best lines to gain the desired objects.

For a young country it was not possible to build ship for ship with her maritime rivals; it was not within her reach to create a fleet numerically equal to those of other great powers. What was possible was to build a few great war-ships larger, stronger, swifter, and more heavily armed than any afloat.

With secure bases such as Spezia, Venice, Taranto, and la Maddelina, and with an attendant fleet of rapid cruisers and torpedo boats, the future sphere for the activity of the great Italian ironclads is large indeed. Their primary aim and object is to hinder invasion; no enemy can afford to despise such redoubtable antagonists, and consequently the object of their construction is to some extent already attained. It must not be forgotten, on the other hand, that in a country altogether devoid of metallurgic industries, the preparation of a war-fleet can in no case be improvised after the declaration of war with a strong maritime power.

Suppose that the chances of war were unfavourable, and that the enemy was able to proceed with his operations unhampered by opposition, no nation calculates on being able to effect a debarkation on a grand scale before the seventeenth or eighteenth day after mobilisation. We shall presently see what forces are concentrated at the threatened points by this time.

Latterly the Italians have not neglected preparations for a maritime expedition in case of need, and the authorities calculate on being able to despatch 40,000 men by sea in the third or fourth week of mobilisation. No reliance, however, can be placed upon these estimates,

for neither naval nor military authorities have had any real practical experience in such extensive operations.

Again, although much has been done to complete all arrangements for a concentration on the threatened land frontiers, little has been accomplished by way of familiarising the problem of a concentration on any section of the coast, by means of plans drawn up by the mutual co-operation of naval and military officers, and judged on their merits by manœuvres on the ground.

The staff tours form the exception to this rule. For instance, in 1882, General Dricquet, Commandant of the Head-Quarter Staff, with twenty other officers, assisted in the execution of double skeleton manœuvres in the important district between Monte Argentaro, Chiuse, and Orvieto.

The attacking party represented a hostile force which had debarked at Talamona and Porta Ercoli, north and south of Monte Argentaro, and advanced into the interior so as to divide the forces of the defence, and operate either towards Rome or the valley of the Arno. The defenders had to study the best means for concentration, for choosing good positions, and for defeating the intentions of the adversary. This particular tour was held to demonstrate that a force debarking and advancing into the country would meet with the greatest difficulties on account of the excellent defensive positions and the general nature of the country.

All such double skeleton manœuvres are, however immeasurably barren of useful results in comparison with practical manœuvres on a large scale.

The conditions necessary for the success of a maritime expedition are becoming more and more favourable. The difficulties are great, but they are not insuperable. The ease with which the transport of over 40,000 men was effected during the expedition to Egypt, and the comparatively insignificant drain resulting on our mercantile fleets, afford additional testimony to the accuracy of this statement.

In the Crimea again, the English and French allied fleets, 460 sail in all, carried 60,452 men and 115 guns. Steam, it is said, has bridged the Channel; it has certainly minimised the difficulties of a maritime expedition.

The "lessons from Lissa," as learnt in Italy, were less those tactical and technical details, which Captain Colomb has so ably expounded, than the severely-felt absence of a chief responsible for the permanent direction of the two arms of the service, in conjunction, in time of war; in fact, of the defence of the nation *as* a nation.

The unfortunate direction of the Italian fleet, responsible as it was for so much in 1866, technically unskilled, irresolute in action, and in disaccord with the army direction, is different in these later days, and more in consonance with the exigencies of the situation.

Italy has not much to fear as regards a maritime invasion from any nations save England and France. The powers possessed by the latter nation are very extensive as regards a maritime expedition.

At Toulon alone, no less than four divisions can be simultaneously embarked, and the operation can be completed in a single day of twelve hours. The nature of this

valuable seaport permits the operation to be carried on without friction between the divisions, and each would have ample room for its own proper acts of embarkation. Marseilles is still more favoured in this respect: 85 ships can be conveniently and simultaneously laden without any extraordinary efforts. The mercantile marine of France is capable of furnishing a suitable military steam transport of 250,000 tons displacement. Of this tonnage, 150,000 tons are generally available in the Mediterranean alone. Nothing is more misleading and uncertain than an attempt to gauge the limits of the actual carrying power of mercantile fleets, but when we consider the above statistics, it would be rash to argue that France cannot, in a comparatively short space of time, equip and despatch a convoy of 100,000 men under good conditions.

Both the war and mercantile fleets of France have increased, and are increasing, to an extent that deserves the strictest attention from neighbouring powers. Shut out from fields of enterprise in Europe by a ring-fence of Italo-German bayonets, France will seek to find vent for the restless activity of her children in a militant colonial policy at the expense of her neighbours. It behoves, therefore, those nations who are likely to be the losers from such a state of affairs, to combine in resisting these adventurous designs.

All attempts to surround peninsular Italy with a girdle of strong works, in order to repel maritime attacks, would lead to gross exaggerations, and would prove beyond the power of Italian finance. The authorities have wisely determined to trust to the

combined action of the fleet and the field forces to repel all such attacks, and have striven incessantly to give increased mobility to the armies of reserve, in order to enable them to successfully accomplish unaided the object in view.

Without a thorough understanding between the services, an enterprising enemy might throw the mobilisation schemes of Italy into extreme disorder by bold raids along the coast-line against unprotected centres of commerce, arsenals, military districts, manufactories and depôts, while again he might debark considerable forces at almost any point of the extensive coast-line, and thence move either to effect temporary objects or to conquer the country. "An attack by the gulfs of Naples or Tarentum," wrote the Baron Félix de Beaujour in 1832, "only strikes Italy at her extremities, but an attack by the mouths of the Arno strikes at her heart and cuts her in two."

Taking everything into consideration it seems indisputable that, while naval and military preparations of considerable value have been rapidly accomplished, the fact remains that a superior naval power can act where, when, and in what force the course of the campaign suggests, against the extended coast-line and unprotected maritime towns.

It is the fashion in Italy to throw such considerations too much into the shade, with a shrug of the shoulders and an inquiry of *Cui bono?* Italian soldiers seem to affect a disbelief in great debarkations which, for the sake of some countries, it might be well if all soldiers and sailors could equally adhere to.

Modern science has provided a valuable ally for the mistress of the seas, and by minimising the difficulties of transport has correspondingly increased the dangers for a weaker military power with an extensive sea-board. The Italian line of argument appears to be that not only is a debarkation difficult in itself, but that the difficulty is intensified by well-digested schemes to counteract invasion, while lastly that the capture of even one or two important points would exercise no decisive influence upon the operations of the main armies.

It would be an ungrateful task to attempt to fathom the many possibilities of a purely maritime expedition against Italy, whether undertaken as the capital element or as a secondary attack upon premeditated plans for disorganising the war machinery of the interior; the course of such a campaign would be guided solely by the light of contemporaneous politico-military events. We cannot share, however, the sanguine views so often expressed in Italy concerning the insuperable difficulties of a debarkation on a grand scale. We do not doubt that, other things being equal, the powers of modern states for maritime offence have kept pace with their powers for land resistance, and that the effectives of a maritime invasion in the future will be as proportionately great as those of a land invasion are to-day in comparison with the numbers put in motion a century ago.

The difficulties of course are great, and the labour in detail prodigious. Some idea of the vastness of such undertakings may be gained by studying Napoleon's preparations at the camp of Boulogne for the invasion

of England; but the difficulties are *not*, and they are becoming *less*, insuperable.

In spite of all we find urged to the contrary, we must decide that unless the organisation of the territorial militia is quickly perfected, unless points of support are accorded to it in the various sections of peninsular defence, and arrangements made for rapid and concentrated action in combination with the fleet, a very small hostile force might work immeasurable havoc, demoralising in the extreme, and rendering a tenacious and protracted campaign, south of the Arno, impossible.

The rise and development of the Italian war-fleet has been one of the best-discussed and least understood themes in reference to the naval and military preoccupations of the country.

The *rôle* pertaining to the Italian fleet in case of war is a capital one; it forms an absolutely indispensable element in the defence of the kingdom.

We in England are accustomed to regard our ends as not attained in foreign waters if our ships on a distant station are outnumbered by those of any other power, if our commerce is not sufficiently protected, and if the iron links do not form a continuous girdle of power from China to Peru.

In Italy, the fleet is a defensive weapon, intimately connected in all manœuvres with the operations of the land forces.

To cover the flanks of the army in the valley of the Po; to defend, if possible, the long sea-board and the unprotected towns and villages on the coast; to prevent

local or general debarkations; these are duties more vital than the protection of national merchandise or far-reaching attacks on hostile commerce.

The great danger for Italy consists in a simultaneous attack by sea and land on the part of a strong and well-prepared foe. If the land forces can make head against the enemy's columns struggling in the Alpine passes, the aspect of affairs will alter, supposing that 60,000 men are suddenly debarked, say on the Ligurian Riviera, or the stretches of beach north and south of Monte Argentaro.

It will then become a first consideration for the fleet to possess liberty of action in order to counteract the enemy's designs. From this it results that there is a certain set fixity of purpose determined for Italian ironclads, and therefore that the number, strength, and design of these latter must, to a great extent, have for their fundamental basis the peculiar requirements of national defence.

From the circumstances of the case, an Italian warship must be autonomous, rapid, and strong—autonomous, because it will have to rely on its own resources, for perhaps a considerable period; rapid and strong, because it may have to combat a numerically superior force of hostile ships.

Italian naval construction, considerable up to 1866, declined in a marked manner after the battle of Lissa. This may appear strange, but, in fact, the cession of Venetia seemed to point to the conclusion that greater benefits were to be derived from a development of the army, and to this all attention was in consequence

bestowed, and the navy was neglected in proportion. Renewed activity was manifested in 1873, and since that date progress has been rapid, while all due regard has been paid to the possibilities of the future of naval architecture.

Admiral St. Bon, who assumed the portfolio in Marine in 1873, declared the *rôle* of the fleet to consist essentially in coast defence, persuaded that a debarkation on any given point of the coast could be effectually prevented by the fleet alone.

It was palpable at this time that the true cause of the Italian fleet being inadequate for the responsibilities it would incur in war time was to be found in the insufficient budget attributed to the naval department.

The respective proportions allowed to naval administration and material out of the annual budgets stand as follows: England $\frac{1}{10}$, Germany and France $\frac{1}{15}$, Austria $\frac{1}{16}$, Russia $\frac{1}{21}$, Italy $\frac{1}{32}$.

On taking office, the first step of Admiral St. Bon was to insist upon the immediate dismantling of a number of antiquated vessels of war, whose preservation demanded such heavy sums annually. Of the 73 ships of war existing at this time, the Minister requested leave to condemn 33 out of hand, making the matter a question of confidence, and proving his courage in initiating a vigorous naval administration by heroic remedies. The strange ways and means of Italian parliamentary life relegated the discussion of his projects for an organic plan of naval reform to February, 1875. After an animated and

interesting four days' discussion the Minister's plan was accepted *in toto.*

In any future war the system of naval defence will have for its active element direct maritime and yet strictly defensive action, for its passive element fortified arsenals and coast defences combined with the resistance of active army and militia.

A war-fleet operating against Italy would have one of two great objects in view:

(1) To paralyse commerce, exact heavy indemnities from unprotected seaports, to menace the communications of the army, and attempt *coups-de-main* against arsenals and establishments, corresponding to the secondary element of the attack; or else,

(2) It would form the guard and base of operations for a corps debarked.

The first method might be locally disastrous, but would in all probability not of itself render possible a dictation of terms; the second plan would be vital.

The Italians do not place much faith in a multiplication of coast defences to materially bar the way against aggression at every critical point on the sea-board; they prefer to solidly fortify a few great arsenals as bases of operations for the fleet, and to defeat the ends of the enemy by naval action combined with defence by rapidly concentrated land forces, rendered possible by a good system of observation with a rapid development of interior communications.

In case of a war with France it appears likely that the combined fleets of Italy would concentrate at la Maddelina in Sardinia, and trust to an energetic defence

by offensive returns whenever possible. In this position a squadron would cover Spezia and Genoa, menace Toulon, and be able, from the topography of the situation, to accept or refuse battle at pleasure if supplied with coal and material of war.

The best season for Italy to attempt to minimise the effects of numerical inferiority will be during the first twelve days of a war, while the larger fleets of France are engaged in concentrating from distant waters; this period equally corresponds with the time taken by the first ships equipped at Cherbourg and Brest to rejoin the Mediterranean fleets.

Supposing a debarkation accomplished, the Italian fleet, operating by divisions, would attempt to capture transports, prey upon the communications of the enemy, and operate against his temporary or permanent bases on the coasts—feats requiring audacity, resolve, and skill, but realisable with a properly contrived intelligence department.

CHAPTER X.

DEFENCE OF THE NORTH-WEST FRONTIER.

Dread of a French Invasion—The Frontier Line—The Eastern and Western Slopes—The Graian, Cottian, and Maritime Alps—General Characteristics—Summits of the Passes—The Cols—Zones of Defence—The Country Comprised between the Rhone, the Mediterranean, and the Alps—Strength of this District—Works of Defence, Object and Extent—Railways—The Railway Policy of France—Groups of Fortified Places—Garrison—Object of French Preoccupations on this Frontier—Probable Early Offensive Action of the Italian Forces in the Event of War—The Comparative Situation of the Two Countries on the Frontier Line—Superior Resources and Organisation of France—Probable Numerical Strength of a French Invasion—Characteristics of the Great Passes—Retarding Power of the Alps—The Alps as the Capital Element of Defence—Points of Importance Decided—Advantage of Delay to Italy—Characteristics of Italian Defence—The Valley of Aosta—Mont Cenis and Mont Genèvre—Secondary Tracks—The Assietta Position—The Sangone Valley—Objections to these Advanced Positions—Calculated Garrisons—The Maritime Alps—The Col de Tende and d'Argentière—Secondary Tracks—Advanced Base of a French Attack—Calculated Garrison for the Defence of the Maritime Alps—The Ligurian Riviera—Plan of Defence—Landing Places—Vado and Sestri-Ponenti—Objective Points of an Attack—Calculated Garrison for the Defence—Essence of the Defence—Total Forces Employed in Local Defence Proper—Forces Remaining for General Defence—French Opinion—Alpine Defence after the Fall of One or More of the Greater Passes—Determined Optimism of Italian Opinion—The Swiss Frontier—The Swiss Levies—The 8th Federal Division—Geographical Situation and Influence upon the Peace of Central Europe—Line of Concentration of the Italian Army in Piedmont—The Montferrat Hills—Second and Third Lines of Defence.

From all that precedes it is sufficiently evident that the greater part of the military preoccupations of Italy

have their origin in a dread of invasion from the west.

The Alpine troops, the national system of frontier defence, the ever-increasing ironclad fleet, the perpetual additions to the armies in first line and in reserve, derive chiefly and principally their *raison d'être* from the menacing aspect of affairs in republican France; the military position on the frontier zone becomes, therefore, a first consideration for both nations.

The frontier line from Mont Blanc to Ventimiglia follows the line of watershed, but has been so delimitated as to leave in Italian hands the absolute crest-line, thus permitting the organisation of defensive works during times of peace.

The eastern and western slopes of the range throughout its length present a remarkable and noteworthy contrast. On the Italian side the slopes and spurs are steep and abrupt, the offshoots from the main chain are neither imposing nor important, while they are all at right angles, or approximately so, to the central range; cultivation is poor and scanty. On the French side it is altogether different; vegetation, cultivation of every accessible acre is the rule, not the exception; the valleys, too, differ, being long, divergent, broken, and of great extent, offering considerable obstacles to the manœuvring of great masses of men.

From Mont Blanc to the Mediterranean we find:

(*a*) Graian Alps, from Mont Blanc to Mont Tabor.

(*b*) Cottian Alps, from Mont Tabor to Monte Viso.

(*c*) Maritime Alps, from Monte Viso to the Col de Tende.

These divisions are by no means arbitrary, and must not be taken to express separate or easily divisible chains of mountains; authorities differ as to the actual points of separation of the chains, but the above are those most generally accepted.

The general characteristics of the mountains depend upon their particular altitudes; we may take from 1,800 to 2,200 mètres as the zone of highest habitations, and the limit of pine-woods; from 2,200 to 2,800 mètres as the zone of pasture-land, free from snow July and August; over 2,800 mètres as the sterile zone.

Gradually ascending the western Alps from the plains, we find in succession similar varieties of scenery, roads, and habitations. At the foot of the first slopes are well-cultivated fields, stretches of plain land varied by rows of trees, vineyards, woods, and scattered villas; small and straggling hamlets crown the first rising ground. Higher up the villages are smaller and scattered houses infrequent; the slopes of the mountains, dotted with great massive boulders covered with moss and shrubs, rise abruptly round us. Higher again pine-woods and pasturages meet the eye; rocks, stones, turf, and brushwood cover the slopes of the heights, the road is little better than a mule-track, crossing and recrossing some foaming torrent. Above this we reach the zone of the mountaineer.

The summits of the passes vary in height between 1,800 and 2,000 mètres; as a rule they are free from snow from the 1st June to the 30th September. The heights of these are low in comparison with the heights

of the peaks, being in a mean altitude to the summits of the mountains as 1 to 2.

The cols or saddles of the passes differ widely ; they may be divided into three classes :

(1) The plateau-col, often forming a broad and level plain, and surrounded by hills with gently-rising slopes. A position of this sort lends itself to more extensive works of fortification, but has the disadvantage of enabling the assailant to deploy a larger number of men in first line than is usually practicable in hill-fighting.

(2) The breach-col, formed either by glacial erosion or by an upheaval of the ground ; not easily turned as far as local attack is concerned.

(3) The torrent-col, formed in the glacier period and deepened by erosion. This is the only kind susceptible of Spartan defence by small bodies of men ; it is not easily accessible to wheel-carriages, as the track leading to it crosses and recrosses the stream many times.

From a strategical point of view the frontier may be divided into three chief sections or zones of defence as follows :

(*a*) The first of these, or the northern section, includes the valley of the Dora Baltea and the passes of the Great and Little St. Bernard. Apart from the comparative isolation of this section, the difficulties in forwarding, supplying, and eventually bringing into line a sufficient number of men to materially disconcert the defence would be great.

Napoleon's army of reserve, which effected the historic passage of the Alps, numbered but little more

than the strength of a single army corps to-day;* such a force would be no longer a decisive factor in the struggle of nationalities.

(*b*) Southward of this section there is no single respectable track through the Graian Alps until we come to the valley of the Dora Riparia. Between Mont Cenis and Monte Viso lies by far the most important zone for the Italian defence. The mountains and passes are lower, and the whole district is more generally practicable for troops; the passes of Mont Cenis and Mont Genèvre are the easiest and most suitable for heavy transport work of all those on the western frontier; lastly, the French organisation scheme for active forces and fortress defence favours bold action in this direction.

(*c*) The third section includes the valleys of the Maira and the Stura, and is formed, generally speaking, by the Maritime Alps; all the passes and tracks across the frontier in this zone, chief among these being the passes of Argentière and Tende, converge on Coni, just as in the second or central section they converge on Turin. Before examining the defensive capabilities of these three zones, and of the Ligurian Riviera, it is necessary to briefly touch upon the distinguishing characteristics of the western slopes of the mountains comprised between the Rhone, the Mediterranean, and the Alps. Speaking generally, this may be described as a strategic zone of an eminently defensive character.

An Italian invading army would meet with grave obstacles in attempting any offensive movements in this difficult district.

* 38,259 men. See "Correspondance," Jan. to May, 1800.

We have already noticed the depth of this mountain zone; we find, besides, that the direction of the principal valleys is divergent as far as concerns an Italian forward march, so that apart from all other considerations, and remembering the enveloping character of the French frontier, we must admit that Nature herself has accumulated obstacles to an advance of no mean order.

History has proved, if proof is needed, how strong this frontier is, and can be made. Latterly, the great military engineering works in France have rendered the zone in question yet more formidable. The system adopted has aimed at, briefly, three points in particular:

(1) To paralyse Italian invasion in the north.

(2) To increase the offensive and defensive action of the centre and right.

(3) To prepare an offensive maritime base on the Mediterranean, well protected and secure on land and sea.

In estimating the strategic worth of a frontier line, the carrying power and extent of the railway network are of prime importance.

The startling events of 1870–71 brought about the vast works of fortification provided for in 1874, but the railway question had no such rapid and satisfactory solution. The absence of systematising in such an important matter was but the natural corollary of the disjointed action of republican Ministries, displacing one another in a too rapid succession. It may be said that up to 1877 France had no railway policy, and that isolated and unconnected lines were by no means exceptional. The crisis of 1877 produced satisfactory results,

in so far, that a general system was at length introduced, aired by ample discussion, and a national settlement of railway affairs was at length arrived at, both commercial and military interests profiting in consequence. The system will not be fully matured until 1890.

In considering the system of fortification sketched out in 1874, we must bear in mind the origin of the undertaking. Before the Franco-German War the relations of the two great representatives of the Latin race, one with another, were far different from what they are to-day. After that disastrous campaign an Italo-Germanic alliance, no matter how superficial nor how little based on a true appreciation of mutual interests, was still a possibility always to be foreseen. This being proved to demonstration, the organisers of fortress defence in 1874 were called upon to undertake far more serious and extensive works of fortification than would seem called for by the natural strength of the frontier, and the relative strength of the forces of the two peoples.

If we examine the result of the labours of 1874 we find that all the great lines of Alpine communication with the peninsula are covered either directly by barrier forts, or indirectly by great entrenched camps.

The main points aimed at by this system of fortification have been noticed above; in addition, it may be observed that a remarkable rigidity has been imparted to the line of defence, and any disadvantages that might accrue to France, threatened by invasion, from the concavity of her eastern frontier, have been skilfully minimised.

The advantages deducible from this fortress system are, however, by no means confined to a pure defence; on the contrary, they are more remarkable in the assistance they seem to offer a French attack on what has already been briefly shown to be the most generally accessible section of the frontier line, namely, that between Mont Cenis and Monte Viso.

The fortified group of works between Briançon on the north and Fort St. Vincent on the south, forms an offensive weapon of great menace for Italy. The strong places included in this zone are Briançon, Queyras, Embrun, Fort Tournoux, and Fort St. Vincent. They enclose a district 8 myriamètres long by $3\frac{1}{2}$ broad; they guard the entire frontier between Mont Cenis and the Col d'Argentière; they enclose the valleys of the Upper Durance and the Ubaye, offering a vast, fertile, and secure place of arms for the concentration of a French invading army. Nothing has been left to chance. The railway system has been extended in order to facilitate mobilisation and concentration, and every arrangement has been entered into for the storage of ammunition and material of war.

But this group of works is not the only one to be noticed; indeed, it says much for the skill of French engineers that while all important points are directly or indirectly guarded, there is nothing to show the direction in which the blow may be certainly expected to fall. To the north we find Albertville and the forts on the Isère, with Fort Barnaux on the eastern slopes of Mont Granier, Fort Pierre on the southern spurs of the Jura mountains on the right bank of the Rhone, and

lastly the entrenched camp at Grenoble, forming a defensive bastion on the north of much strength, and protecting Lyons, the main objective point, from all attacks in this quarter. Lyons itself is to-day fortified, and has become an extensive position of great strength.

To the south we find fortifications at Sisteren, Colmars, and Entrevaux, designed as the advanced chain of works to protect the great maritime arsenals and fortresses against an army advancing from the north or north-east.

The Rhone forms a natural barrier of considerable strategic worth ; the great centres on this line, Valence and Avignon, are unfortified, but the eastern slopes of the Cevennes offer many excellent natural positions of strength.

In any further advance against Paris, and more particularly in case of an Italian co-operation with a German initiative, there remains the great quadrilateral of Langres, Belfort, Dijon, Besançon, to be reckoned with, excellently placed for sheltering an active army of great strength, and in combination with the Vosges forts forming a connecting link between the defences of the Alpine frontier and the lines of the Meuse and Moselle.

Basing our researches on existing conditions, then, we must conclude that France would not be so immediately and seriously embarrassed in her plans of defence as might at first sight be supposed, in case of a double campaign. We must look for the cause of this to the changes that national armies have wrought in all the paths of strategy.

The garrisoning of all the strong places facing Italian

invasion requires 130,000 men, this figure including 60,000 men for garrison work proper, and 70,000 not quite as an active army, but rather as a mobile force, circulating freely in the fortified groups above enumerated. The tactical units required have been given at 45 active battalions, 18 field batteries, and 18 companies of engineers. Of the whole number 55,000 men would be drawn from the active army, 75,000 from the territorial army. It is one of the peculiarities of the French system of mobilisation that such wants can be met, if the order to mobilise is general throughout the country, without disturbing the harmony of the scheme in its entirety. Thus, in the case in point, the fourth battalions of six army corps would be sufficient for the needs expressed, while there remain other elements, unnecessary to specify, whence garrison troops could be readily withdrawn.

The object of all these preoccupations is, briefly, to enable the French army, given the occurrence of this dual campaign presupposed, to seek decisive results elsewhere before being seriously incommoded by an invading army from across the Alps.

As far as fortress warfare goes it is clear enough that the Alpine frontier is sufficiently secured against possible contingencies, but in the above statement of necessary forces rather a low estimate seems to have been formed of the offensive capabilities of the Italian army. For the French, however, such considerations are of secondary importance in comparison with the rigid observance of the Napoleonic maxim, "Point du détachement la veille d'une bataille."

The first pitched battle between opposing forces on the Rhine would take place before the Italian army, under the most favourable circumstances, could be in a position to advance across the frontier in a thoroughly resolute manner, and sufficiently well organised to carry on war in an enemy's country.

Therefore, French defence will resolve itself into the effort of a retarding force to hold the Italians in check in the western valleys of the Alpine ranges, until the result of the campaign on the Rhine is pronounced. It seems improbable, under the most favourable circumstances, that an Italian army could be in position on the banks of the Rhone before a long and severe four weeks' campaign. We do not insist that the waving plumes of the bersaglieri will not have pressed forward thus far within the time given; but no well-organised army will be in a position to advance with a secure base before the conclusion of this period.

We have seen, however, that the most menacing section of advanced French defence consists in the Dauphiné region, comprised between Briançon on the north and Fort St. Vincent on the south. Of this fortified group, Briançon, Queyras, and Fort Tournoux, forming, as it were, the eastern front of the group, are in dangerously close proximity to the Italian frontier, and all of them are open to converging attacks from different lines of communication across the mountains. We have already dwelt upon the preparedness for war of the Alpine troops, and we have noticed the rapidity with which Italian regiments,

on a peace footing, reach the appointed zone of concentration.

Can it be imagined that such reserves of strength will be allowed to pass the hours in idleness while the storms gather and threaten across the mountains? It is impossible to suppose so, and it can hardly be doubted that, be the campaign single or dual, a very strong effort will be made against the centre bastion of the French advanced works, while this effort will be certainly feasible during the first six days of the war.

Of late years the French have acknowledged the inferiority of their special frontier troops, but neither M. Césanne, deputy for the Hautes Alpes, who demanded a full consideration of the subject, nor the various senators and deputies who have followed him, have succeeded in forcing a definite solution of the question on the Ministry of War.

A French provincial paper, the *Impartial des Alpes*, published, in 1881, a remarkable study on the comparative situation of the two countries; in it we find a curt, pithy statement of existing defects.

"The first care of each of the two parties," remarks the writer, "should be to seize the decisive points of the extreme frontier, whether they happen to be on friendly or hostile ground. A trial of speed will therefore result, influencing decisively the first operations of the war. What is our status as a military power in the Alps? What do we find? On the one hand the Alpine companies permanently organised, at the very doors, so to speak, of the posts to be occupied,

composed of men inured to mountain marching, accustomed to brave the climate, knowing the tracks of the mountains from their infancy, capable of finding their way even in the midst of the thick and sudden mists which cover the heights so often during the year, commanded by chiefs who have studied, under their personal responsibility, the system of defence for the section of the frontier with which they are charged, assisted by a special artillery, with which they are exercised in marching and fighting. On the other hand, regiments of infantry, and even battalions of chasseurs, quartered in garrisons often far distant from the frontier line, with soldiers of all classes and conditions, and perhaps having been but a few days with their corps, with officers whose time is entirely taken up with local duties and the drill grounds. Not only are these officers ignorant, for the most part, of the country, except from what is learnt by occasional promenades, executed without system or method, but they are even unaware of what is expected of them at the critical moment. The plan of defence, if such exists, is kept a profound secret in the hands of the engineers or of the higher authorities—that is to say, of those who will take no part in the first operations, so that when the time for action comes the enemy will appear before those who should prevent him can receive their orders."

It has been too hastily supposed, because it is within the regions of possibility, that France may be able to retard an Italian attack while she brings all her strength to bear upon the decisive point elsewhere; that therefore, presuming no other enemy to be in the field, she is

capable of flooding northern Italy with resistless forces and overpowering the Italian army in a comparatively short space of time. If these ideas may not be described as baseless they are certainly exaggerated. The numerical inferiority of the Italian army, and the less perfect organisation of the auxiliary services, would certainly be pronounced if the Alpine zone did not offer a compensation for much inferiority in army organisation. Dabormida expresses his views on the subject in a similar sense: "France, by the configuration of her territory, by the abundance of her equine productions, by the number of good railways, by the large supplies of military stores, provisions, and material which she has accumulated, and by her colossal financial resources, is enabled to mobilise her army in a shorter time than Italy. The latter country would to-day be at the mercy of France but for the Alps, which, with their numerous prolongations on French territory, constitute a retarding zone between the two nations."

In estimating the probable numerical strength of a French invasion in a single-handed campaign, it would give a false idea of the true bearings of the question to calculate the whole army at its mobilisable total. It has been already noticed that the logistic question alone of passing some hundreds of thousands of men, with all their impedimenta, through the passes of the Alps, is a sufficiently difficult and intricate one, even excluding all question of Italian defence. Of the passes of the Alps on the Franco-Italian frontier, six only are suitable for the passage of troops on a grand scale; it has been calculated that each of these six great roads

may admit of the passage, as a first échelon, of 50,000 men, while by sea perhaps 60,000 men might be thrown upon the Italian coast in time to co-operate with land attacks. We therefore find that the first échelon of invasion may be set down at 360,000 men.

The railways of South-eastern France admit of over 100 trains a day arriving from the interior about the line Toulon—Culoz; the generally defensive character of this section of the frontier is further marked by the fact that only half this number can be despatched during a working day in advance of this line.

Supposing the French plan of mobilisation unhindered by the enemy or by any unexpected difficulties, each army corps will be mobilised in eight days, and after this period effective forward movements can be made. It is calculated that on the 13th day the campaign would commence by the first échelon of French attack coming to blows with the defenders of the central sections of the western Alps, followed by the appearance of the heads of attacking columns at the Col d'Argentière on the 14th day, and at the Little St. Bernard on the 17th. These calculations are only approximate, for it would be absurd to lay down anything absolute in such a matter, and we have already noticed the probability of a more rapid solution of the preliminary actions being sought for by the Italian forces.

At the same time the nature of the great passes does not admit of handfuls of men detaining the advance of great attacking columns while the mass of the army is concentrated elsewhere for some definite

offensive movement. It is a common error to suppose that the great passes of the world (and the Alps form no exception) are perpendicular gorges with frowning precipices rising abruptly on either side, while each hill fort bristles with cannon on some commanding eminence in the pass, like an Ehrenbreitstein on the top of Mont Blanc.

The first fact that will probably strike an observer is that these dread passes are essentially valleys, narrowing possibly for a limited space to a defile, but remaining valleys throughout the greater part of their length, with spurs and prolongations sloping away gradually towards their extremities, and requiring no inconsiderable ingenuity to devise a satisfactory position and plan for the defence.

The Alpine passes between France and Italy are of this category, and seldom lend themselves to defence by less than 5,000 or 6,000 men; as for the Alpine forts they are usually built on spurs stretching into the valleys at right angles to the general line of the pass; dominated as they are almost always by the heights surrounding them, their principal strength consists in the inaccessibility of these heights.

If we admit only the minor *rôle* of the first line of resistance, namely that of retarding the enemy's advance while the mass of the army is concentrated in rear, it is necessary for the Mont Cenis fort to resist 7 days, Exilles 6 days, Fenestrelle 5 days, Vinadio 4 days, Col de Tende 4 days, and this should be obtained with comparative ease.

Again, supposing that the effects of this minor *rôle*

are pushed to their logical consequences, the Italians would find three great armies confronting them on the lines Pignerol — Avigliana, Stura — Vermegnana, and Tanaro—Bormida, neither being less than 100,000 men.

We come back then to the vaunted manœuvre by interior lines, and may doubt whether the Italian army concentrated would be able to fully utilise their position if the three French armies were under a single command, for it must be remembered that with the passes in French hands the field forces would be rapidly reinforced.

We will not go into the possibilities of this case again, but we may remark that even the most astonishing Italian victory must have practically negative results.

If the French armies were thrown back in confusion through the passes a second army of equal number would be ready to oppose the victors and repair past mistakes. "No strategical combinations," says Dabormida, "can remedy this state of things; it is the inevitable consequence of geographic and numerical conditions."

In the present state of military opinion it cannot be doubted that the Alps will play no such secondary *rôle* as would be theirs in these and in similar plans.

It has been definitely agreed upon that the defence of the Alpine zone must be the capital element of the national defence.

In considering this question it must not be forgotten that up to a certain point the successive developments of the invader's operations can be approximately calculated. We do not, of course, mean to imply that the Italians can count upon immunity from local attacks in any section of their frontier line, for certain organic

changes in the French army of late years seem to point to such taking place immediately the order to mobilise is given, in the same manner as the troops stationed in the "dead zone" of the German frontier are constantly ready to take the field at short notice. But, for the heavy masses of the invader's armies, it is a question of known quantities, of definite mathematical calculations, whether the mobilisation schemes, the carrying power of the railways, or the defensive value of works of fortification are under consideration. It would in fact be, as far as the masses are concerned, a methodical war, and a great amount of circumspection and resolution would be required from both leaders.

Again, judging by the light of the past history of mountain warfare, we conclude that campaigns undertaken in inhospitable regions of this kind, where supplies are insufficient, where the strong columns of attack are not versed in the fighting peculiar to the country, and lastly where the defenders are calculated strictly at the necessary limits, that such campaigns are always difficult and often indecisive. The experiences of the Austrians during the Napoleonic era in Switzerland and the Tyrol make this fact plain enough.

One of the greatest annoyances to the defender of a mountain chain is the frequency and misleading character of false attacks or movements of secondary importance, undertaken or hazarded before the main attack is pushed home.

It is one of the advantages of the Italian method that it detracts from feigned attacks the greater part of their value, since such a strong mobile defence is accumu-

lated directly or indirectly at all points that no false attacks should have the chance of being misinterpreted by the defence, unless undertaken with large forces and in full expectation of immoderate losses. Attacks of this kind would form so many columns of invasion, and their feigned character would be of secondary importance.

On the other hand, suppose for a moment the passes held with weak advanced guards, and the mass of the army concentrated in rear of the mountain zone; the chief command would receive reports from a hundred directions, wherever in fact the infantry columns of the enemy appeared; his plans would be subject to hourly change with the apparent designs of the foe, his troops would be harassed and their discipline disturbed by continual marches and counter-marches, so that hostile troops would find the ground already prepared for victory.

The Italians have studied very seriously the various conditions of Alpine warfare. They have determined—it has been objected, too absolutely and too rigidly—a number of points of importance. These are :

(*a*) The force for each zone.

(*b*) The fortifications to be erected.

(*c*) The roads to be made, improved, obstructed, or destroyed.

(*d*) The larger works of destruction required.

(*e*) The magazine-refuges, or chosen points for the concentration of troops in the higher regions.

When we consider the relative inferiority of French preparations on the frontier line, we cannot put it down as vain boasting when the Italians insist that, as an

energetic defence of each section has become a possibility, they will therefore be able to dispute the Alpine barrier with smaller forces and under better conditions than the invader.

Again, each day lost to the assailant is a threefold gain to the defence. Whether the French can force the barrier of the Alps in a fortnight or a month makes no difference as regards the actual number she can, in the first instance, throw upon Italian ground. But with Italy it is different; each day increases her chances; she has everything to gain by delay; her forces will be rapidly swelled by militia to a very respectable total; her accessory services will become organised and complete; points of support will be formed in the interior; while her diplomacy will have time to work for her interests in foreign embassies. The instincts and traditions of Italian diplomacy as well as the material results obtained by it in the past prove it to be capable of successful action. Fabian tactics are a species of warfare that would prove disastrous to a republican France. Ministries would fall, leading men would be discredited, soldiers would lose faith in their commanders, and an opening be formed for a very different result from that calculated upon at the outset.

We see, then, that for France, rapidity of action and immediate successes are indispensable; everything tends to prove that the French leaders, basing their action on their central and southern fortified groups of strong places, and upon the sea, will attack strongly and with the greatest possible despatch. Such action offers the greatest probability of success, would be critical and

perhaps decisive in case of success, and exceedingly likely to bring about the immediate solution desired.

Having considered some of the probabilities of the attack, we must notice the salient characteristics of the defensive zone, and of the preparations completed and in progress to resist attack.

The northern section, comprising the valley of Aosta, requires a very brief notice. The Italians calculate the mobile defence of this section at 6,000 men; given this number, basing their action on Fort Bard and the surrounding heights, it goes without saying that a very much stronger force would be required to displace them. On both sides of the Alps the valley of Aosta, as a grand line of attack, has been to some extent disregarded; its direction is considered to be too excentric for employment as a line of invasion, in spite of the great effect the mere presence of a hostile force at Ivrea would produce. One of the chief objections to the use of this line by a French column is that there would be no base distinctly marked from that of the great main line of invasion by Mont Cenis.

The conditions of attack and defence connected with the section of the Cottian Alps are of far greater importance and open to far more varieties of strategical combinations. To begin with, there are the two great passes of Mont Cenis and Mont Genèvre, both eminently suitable for the passage of heavy columns; besides these, there are a number of secondary passes and tracks over the hills, none of them, certainly, suitable for wheeled transport, but all accessible to infantry, and therefore proportionately increasing the logistic

value of the zone in question to the attack. Of these the most noteworthy are La Rone and Les Echelles, north of the pass of Mont Genèvre, and the Col de la Croix and d'Abris to the south of it.

The march of a column advancing by Mont Genèvre would be cramped for only a limited part of its passage; once in the valley of the Dora Riparia, the Exilles road and broad valley offer sufficient space for the simultaneous advance of troops on three distinct lines. With the assistance here derived from the railways and from the general accessibility of the secondary tracks over the hills, it may be concluded that France can bring heavier forces to the front in this section than in any other. Fortunately for the Italians, the natural defences of this zone are of great strength, and offer advantages fully compensating for the generally accessible character of the mountains.

The defence of the col of Mont Genèvre is not easy directly, owing to topographical conditions, but to the south-east is the plateau of Assietta, of vast importance to an energetic defence, and forming a serious obstacle to the invading columns, since the siege or capture of this strong position is by no means an easy task. The forts of Exilles and Fenestrelle, north and south of Assietta, are in a position to make head against attack, but nothing serious could be attempted against them with effect, until the surrender or defeat of the defenders of the plateau. The victory of the Piedmontese in 1747 amply demonstrated the strength of this position. The master of the plateau is the master of the Cottian Alps.

But this does not close the list of the obstacles to an invasion in this direction, for in rear of this first line of defence there is a second one, very similar in its main features, of great natural strength, and equally influencing the columns of invasion advancing by Mont Cenis and Mont Genèvre. This is the valley of the Sangone, which forms practically a vast entrenched camp, open to the rear, but secured in front and on the flanks by abrupt and almost inaccessible heights. Held by a fairly large garrison in conjunction with the position of Torre del Colle in the valley of Susa, and that of Porte in the valley of Fenestrelle, it is considered that an obstacle would be formed of greater strength in some respects than Assietta, and dominating the outlets of the Cottian Alps throughout their length. The calculated garrison for the local defence of this zone has been fixed at 30,000 men.

The great objection to placing reliance on these advanced positions is that although the positions are there, still modern warfare is so sudden in its appearance, startling in its rapidity and abrupt in its solution, that it is impossible to predict that the defence will not be forestalled by a better-prepared enemy, especially when we consider the extent of the two great positions that form the barriers, and the at present unprepared condition of the whole. And yet this circumstance is a disadvantage more in appearance than in reality. To begin with, as regards the men, the actual mobile defence of the frontier, we have seen what an admirable force Italy possesses in the Alpine troops, inured to mountain training and ever ready for action; if to these

we add the infantry regiments, which begin to arrive at the points of concentration thirty-six hours after the order to mobilise is given, we shall find that, as regards actual numbers, a very respectable total will be reached by the evening of the third day. Then as to the completion of works of defence at Assietta and in the Sangone valley, already planned in peace time, there are the military and civil working parties which should suffice to rapidly form the shell of the defences, and these would harden and increase in strength with every hour's delay.

We must pass by the question of the Mont Cenis railway and tunnel with a very brief attention. Doubtless the advantages to be derived from the seizure of this important line are many and evident; but it is difficult to imagine circumstances of surprise which would render the capture of the tunnel intact practicable. At the present time the Italians have a permanent post of *douaniers* in the tunnel.

With regard to this section of defence we must conclude that a well-prepared enemy, able to deploy heavy effectives in a limited time, will have many opportunities for bold action; but that the natural and artificial difficulties to be encountered will prove of no mean order, while the plans for the mobilisation of the Italian forces are laid down in a manner that renders the situation as little liable as possible to accidents of the unforeseen.

In the Maritime Alps the two chief passes are the Col de Tende and d'Argentière. They are separated by a wide interval, but owing to the configuration of the mountains they converge to a common objective point,

Coni and the valley of the upper Stura. Between them six tracks of secondary importance traverse the frontier line, none of them suitable for wheeled transport, and yet all more or less practicable for infantry. The Italian defensive scheme comprehends—first, fortification of, and establishment on the frontier passes; next, as regards the northern portion of this section, a defence of the Barricades, famed in history; and lastly, a retirement to Fort Vinadio, which, when held in conjunction with the Fort del Mulo, forms a good position for arresting the further march of an invader.

It is improbable that the Col de Tende would be directly attacked, except by surprise, since the road winds up the valley in full view of the commanding position at the head of the pass, while the surrounding mountains are rugged and precipitous.

Of the remaining tracks it is enough to say that there would be no insuperable natural difficulties to confront light columns in attempting co-operation with more strongly developed attacks by other lines of invasion. In 1794, for instance, 10,000 men, with artillery, were thrown into the valley of the Var by the Austrians. To-day the conditions of defence are improved, but so are, generally speaking, the communications. In the district in question the tracks follow the lines of the water-courses, and are narrow, difficult, and without resources. Poor and desolate-looking cabins are scattered here and there among the hills, but no supplies of any kind can be expected; attacking columns will have to trust to their own transport for food and forage.

The advanced base of a French attack on the

Maritime Alps would be formed by the fortified line Entrevaux—Colmars; the railway system admits of a considerable deployment of force in the vicinity of this line, so that given the difficulty in finding elbow-room for the deployment of the heavy effectives of France elsewhere; given also the numerous tracks which cross the frontier line between the Col d'Argentière and the Col de Tende, we must conclude that this region is possessed of an importance second only to that of the Cottian Alps, which may be regarded as the decisive zone, owing to the more generally accessible nature of the grand lines of advance, and their more general adaptability to the purposes of lines of communication between great modern armies and their bases established in rear.

The numbers for the local defence of the Maritime Alps have been estimated at 20,000 men, nor does this appear by any means too large a force. In both the Maritime and Cottian Alps it must be remembered that the plans of fortification defence are not based upon any ideas but the mere retarding power of the Alpine zone. Therefore, when we consider the possibility of a strong defence of some of the higher table-lands we must take the season and the period of warning that has been given into account, for it would be out of the question to maintain considerable bodies of men at a high altitude in a rigorous climate without preliminary preparations of shelter and cover for men, stores, and ammunition.

The last section of defence to notice with reference to French attack in particular is that of the Ligurian Riviera.

The conditions differ widely here from those we have noticed in the western Alps. Rounded crests and more

gently winding gradients for the roads take the places of the abrupt precipices and rugged paths of the Maritime, Cottian, and Graian Alps. Troops can be moved and manœuvred off the roads and at all seasons, the hills are lower and more generally accessible to infantry. These peculiarities, combined with the critical influence which a hostile force established on the crest-line would exercise upon the march of operations, have combined to evoke the existing plan of defence for the region which consists in :

(1) Organising a good intelligence department to gain the earliest notice of the enemy's intentions.

(2) Preventing a hostile fleet approaching by the rapid onslaught of heavy war-ships, by submarine mines, torpedoes, etc., etc.

(3) Resisting a disembarkation strongly by the action of the fleet and the local forces.

(4) Rapidly concentrating a large force on the threatened point, and throwing back the impending invasion by bold and rapid offensive movements.

The action of the defence will therefore be distinctly offensive, and this is required by all the conditions of topography and strategy connected with the zone.

The shores have been specially surveyed for defence in case of two possible hostile movements, an advance from Nice, or a disembarkation on the coast; it is also possible that these two movements may be combined.

An advance from Nice along the Riviera by the Corniche would to-day be a very hazardous and foolhardy enterprise unless a strong fleet of war-ships and transports kept pace with the advancing troops; even

then the difficulties would out-balance the gain, and it will be far more profitable if a land advance by this route is secondary to and following after a maritime debarkation. Travelling by the Corniche has been compared to travelling through a flute and looking out at the keys, so frequent are the spurs running down to the water's edge, and the tunnels that cut through them. With the crest-line of the same hills in Italian hands, and a numerous and well-posted force in position, it would be rash, as it is unnecessary, to court disaster by such an attack. It must be remembered that Napoleon's action in 1796 was only rendered possible by the crest-line of the mountains being already in French hands; circumstances to-day point rather to the events of 1800 as more likely to form a guide to future events in the same zone. In that year the Austrians, debouching from the Apennines, separated Massena from Suchet, blockaded the former in Genoa, and forced the latter back to the French frontier.

On the coast-line of the Riviera landing-places are rare. Vado, however, is well favoured in this respect; it is calculated that 35,000 men can be immediately debarked at this point, closely followed by 25,000 more; the defence of the long lines of hills to the north-west of the town is difficult. For an attack on Genoa, Sestri-Ponenti is the best landing-point.

The two main points aimed at in any such advance would be, primarily, the capture of Genoa, and next, an attack, in combination with the columns thundering at the western gates of Italy, upon the concentrated army in the valley of the Po. With regard to the first point,

the loss of Genoa would be a heavy blow for Italy. The enemy would not only gain possession of an important commercial centre, but would be able at his leisure to form a fresh base in a very menacing position. We have already noticed that the land defences of Genoa are not so perfect as the importance of the town demands. The general plan of defence for this region is to form a base of action between Monts Galero and Ermetta, to hold in force the three most important passes between Finale and the Col di Melogno, Savona and the Col di Cadibona, Albisola, and the Col di Giovo, with smaller bodies covered by field works on the secondary mule tracks between these main lines of advance. By these means, and by the possibility of rapidly concentrating additional forces, supposing the section threatened, it is hoped that all offensive movements may be effectually counteracted.

Between Finale and the French frontier three other passes lead across the southern spurs of the Ligurian Alps into the valley of the Tanaro, forming a junction with the road from the Col di Tanarello, thence turning in a north-easterly direction and debouching at Ceva. Owing to the inferiority of the communications, the better defensive conditions of this section, and the less decisive character of a successful advance, it appears probable that an attack on this line would be secondary only to an advance against the Maritime Alps, or a debarkation on the coast about Vado.

It has been calculated that 45,000 men are required for the local defence of the entire Ligurian Riviera. In twenty-four hours 25,000 men could be massed at the

disposal of the defence at any threatened point of the coast-line, and in forty-eight hours, 35,000 men. At Vado, however, where the railways from east and west of the Montferrat hills give an additional power for rapid concentration, and where the communications are better, it has been mathematically calculated that 55,000 men will be ready to resist attack forty-eight hours after the first warning of the approach of the enemy's fleets.

The essence of all defence consists in rapid concentration and counter attack. If the French are ever permitted to gain a foothold on the Riviera, and solidly establish themselves there, the total disorganisation of all Italian plans for defence becomes merely a question of time; fresh forces would rapidly arrive, and Italy would have to choose between abandoning her mountain barrier or chancing the possibility of its defenders being compromised in their eventual retreat.

The defensive plans, however, are so well prepared, the arrangements for the concentration not only of the troops told off to the local defence of this section, but also of the *gros* of the reserve in the valley of the Po, are so well defined and easy of execution, thanks to the general adaptability to the purpose of railway lines, that success in the attack must be considered problematical.

Summing up, then, we find that the various sections of defence require the following numbers for local defence proper:

Valley of Aosta	6,000 men.
Cottian Alps	30,000 „
Maritime Alps	20,000 „
Riviera di Ponenti . . .	45,000 „
Total	101,000 men.

These troops would be formed as follows:

Alpine Troops	35,000
Infantry of two Army Corps . . .	48,000
Militia	15,000
Engineers, Cavalry, etc. . . .	3,000
Total	101,000

In the old days numbers such as these would have completely drained the military resources of a nation, and left nothing, or next to nothing, to form the general reserve. The absurdity of the cordon principle under such circumstances became sufficiently evident.

In Italy, however, after fully supplying the local needs of each section of the defence there has remained, up to the date of the last army reforms, for the defence of the western Alps in general six army corps, with the cavalry and artillery of the two corps whose infantry is operating in the Alps, or 192,000 men; as a local reserve for the Riviera, one army corps, 30,000 men; for the defence of the peninsula, one army corps, or 30,000 men.

It is the main cause of the recent changes and reforms in the Italian army that the conditions of attack and defence on the French frontier appear to Italians to be so mathematically precise, that the above solution seemed not sufficiently satisfactory.

The recent addition of two army corps to the above forces has had the following results, as regards the grouping of the forces in case of war. The numbers for the local defence of the first line remain the same; but the result of the step is to admit of one additional army corps being given to the general reserve in rear

of the Alps, this, with the reserve of the Riviera defences, now reaching a total of 252,000 men; besides this, another army corps assists in peninsular defence, and completes the *ensemble* of the whole.

In this calculation we have solely occupied ourselves with the active army; we have already seen how soon and in what numbers the services of the mobile and territorial militias may be counted upon.

It is unnecessary to give further details of Italian preparations; by consulting the localisation plan, the railways and their carrying power, the periods necessary for mobilising formations in first, second, and third line, a rough estimate can easily be formed of the practicability of a strong concentration in any required direction.

We cannot leave the subject without a passing glance at the other side of the question.

The French or antagonistic critics of the Italian defensive schemes, while admitting in great part the premises, deny the logic of the conclusions. They allow readily enough that the best authorities concur in placing the number of men which can be passed through one of the great Alpine arteries at from 50,000 to 60,000 men, at a maximum; they further admit that the position of the assailant might become critical if this figure were much surpassed. But, they argue, the danger consists in placing reliance so fanatically upon an outer barrier of defence in a struggle against a better-prepared and stronger enemy, while strategic conceptions based on plans which the enemy may only probably attempt—and the less probably since he is aware

that they are expected—form a false system of national defence.

They add, that to lay down plans on the supposition that 50,000 men will simultaneously thunder at each gate of the national rampart is in itself ridiculous, since there is no certainty that one single pass will not fall with all its connecting system of communications and defences, and that a rapid transformation of the secondary tracks in the system into practicable roads would at once falsify all prearranged ideal plans and mythical suppositions.

It is unnecessary to follow further the partisans of either side into the pros and cons of the whole question; we shall merely add that no system of national defence can be considered perfect, but that the probabilities of a satisfactory result increase in direct ratio as the system approaches completeness.

We have seen that whatever attack or combination of attacks may be decided upon by the French staff, whether a single point alone is chosen for the invasion or the whole of the accessible frontier line, there will in no case be a zone of peculiar weakness; in all local defence will be spirited and determined, and enough troops be available not only to resist assault but to push home strong counter attacks.

Even supposing this preliminary defence overcome—and, if diplomacy cannot take advantage of the international jealousies that such a campaign would arouse, this is a mere question of time and of French preparedness to sacrifice so many men to gain certain desired ends—even

supposing this first line of defence broken down, and no great success attending counter offensive movements, there will still remain the Italian army to be counted with. This, of course, will form the most serious part of the undertaking, but it must not be forgotten that there is no reason why, the invasion being a reality by one or more of the grand lines, that therefore, *ipso facto*, the entire defence of the Alpine regions must be at an end. Such ideas are at all events not accepted by the fanatical Alpinists of Italy. It is supposed that in several of the higher plateaux forces of a mean strength of 5,000 to 8,000 men could solidly establish themselves and defy capture for a certain calculable period. They would form, so to speak, so many mountain Plevnas, not only obstructing advance by the regions in which their fastnesses lie, but also acting offensively and rapidly against the enemy's communications and harassing his convoys by every means in their power. Such fortified points, if placed astride grand lines of invasion where it would be difficult to turn them by constructing fresh branches to the roads, might exercise a critical influence upon the course of the war.

While freely canvassing all the chances of a resolute defence, we cannot entirely free our minds from a conviction that the optimism of the *Alpinissimi* may be a little too determined when they insist that they are able to absolutely deny the ingress of a French attack. The strength of France and the generally enveloping character of her frontier, rendering a concentric attack possible from the whole line of the Rhone, and from the sea, stare us in the face in spite of all that can be urged for

Italian preparations for resistance, and form a factor of incalculable advantage in case of war.

The respective capacity of the leaders will here, more than in any other European theatre, decide the balance of war.

We shall dismiss the subject of the Swiss frontier with a very brief notice. Switzerland can put into line 110,000 men in first line, supported by 70,000 landwehr; neither the quality of these troops nor the completeness of the defensive system is by any means satisfactory; the short training received by the *élite* troops does not suffice for modern requirements. The 8th Federal Division has some special characteristics worthy of remark. Its duty is to cover the southern frontier, and for this purpose the course of instruction given to it is, if not so well developed, still much akin to the Italian model. The men are drawn from the cantons of the Grisons, Uri, Schwyz, and Glaris, and their individual aptitudes are excellent. Each year they undertake a series of topographical manœuvres, destined to familiarise them with the ground entrusted to their charge. "A mass of topographical and statistical information," writes Colonel Wieland, commanding the division, "on such a country, may be the means of obtaining a brilliant success."

The Swiss infantry, like all true mountain troops, pay particular attention to rifle practice at from 200 to 300 mètres, and the majority are very able marksmen at these distances.

So far back as 1863 rifle clubs were instituted throughout the various cantons of the Confederation;

these, numbering 225 in 1864, have now risen to 900. State subsidies allow militiamen to take part in the practice and periodical contests.

The geographical situation of Switzerland is important. Originally intended by the Great Powers assembled in conclave in 1815, to be so circumstanced as to be a guarantee against the dominating position that France might eventually assume, by occupying and absorbing the territories between the Lakes of Constance and Geneva, it has become to-day a counterpoise for France in case of an offensive-defensive alliance between Germany and Italy. The neutrality of Switzerland, determined and secured by international treaties, upheld and defended by the unmistakable argument of 200,000 citizen soldiers, forms one of the strongest guarantees for the peace of Central Europe.

Nothing appears more improbable than a co-operation of the Swiss levies in an attack on united Italy; but supposing the forces of the Confederation concentrated at Bellinzona, their mere presence would exercise a considerable influence upon operations in the valley of the Po. A junction between German and Italian forces in Switzerland against the wishes of the latter State would be accomplished chiefly by the action of the Germans, as the approaches from Italy are rugged and difficult. The completion of the St. Gothard railway forms a connecting link between Germany and Italy of great military and commercial worth.

The general line of concentration for the Italian army in the Piedmont theatre is that of Ivrea—Turin—Fossano. The hills of Montferrat offer a support not to

be neglected by the troops pushed back from the Alpine regions. This district is of importance, as it must necessarily be traversed by the invading columns in any future campaign between the two countries. The hills themselves are neither abrupt nor difficult, nor do they offer any serious obstacles to an infantry advance, the summits being rounded and either wooded or cultivated up to the summits. But the soil, a deep and holding red or white clay, cut up and intersected by Apennine torrents, is slimy and treacherous, and presents great difficulties for the march of heavy columns and the transport of stores and material of war.

Asti is the centre of this district, and to this point the railway lines converge. The line Casale—Alexandria forms the second line of defence, but the campaigns of 1796 and 1800 may be quoted to show the fictitious value of this position. In the first instance it was turned from the south, in the second from the north; in both instances the result was fatal for the defence. Hence it is that while military authorities are divided upon the much-vexed question of Alexandria fortified or unfortified, the final decision appears to be a compromise. It is recognised that the proximity of Alexandria to the French frontier and its past history negatives the idea of a vast entrenched camp, but at the same time it is felt that some support is required for the main army concentrated in its vicinity. Whatever the ultimate decision may be, it is evident from all that precedes that this section of the frontier is unsuited to the spirit of fortress warfare, and that the best defence will consist in a concentrated and mobile army.

The third line of defence is that of Vigevano—Pavia—Plaisenza. The defile of Stradella is intimately bound up with this series of strong places; held by comparatively weak forces it should defy attack, since it is a good and commanding natural position. The confused northern spurs and slopes of the Apennines, whose ultimate reaches form the Stradella position, are a serious obstacle for operations between Alexandria and Plaisenza. The hills are of no great height, but the valleys are narrow, cramped, and precipitous, and the absence of abundant water and supplies prevents any great force being maintained by requisitions for even a limited period. Bobbio is the centre of this district, which is defensible, and if occupied in strength might guarantee the main army in the valley of the Po against attacks from Genoa and the Riviera.

It would be difficult to overrate the importance of the Stradella position in conjunction with Plaisenza properly defended. As long as the Italian army can preserve liberty of action in this decisive section the result of the war will remain unsolved.

The system of cultivation and irrigation of Northern Italy has been already noticed. The affluents of the Po on the left bank are subject to heavy floods owing to the lofty mountains and glaciers whence they take their rise; throughout the year their flood of water is considerable.

The affluents on the right bank are very different, as the Apennines whence they spring are less lofty and possess no glaciers; they only form serious obstacles during the rainy season. In the dry season they become insignificant and often fordable rivulets.

CHAPTER XI.

DEFENCE OF THE NORTH-EAST FRONTIER.

The Position on the Austrian Frontier—Menacing Position of the Tyrol—Italian Defence—Defence of Venetia Difficult—Moral Results of an Abandonment of Venetia—Defences of the Tyrol—Military Institutions—1866—Line of Concentration for an Italian Army—The Rivers of Venetia—The Adige and the Mincio—The Line of the Po—Affluents of the River—Obstacles to the Free Movement of Troops—Compensating Advantages for the Absence of a Great Mountain Barrier.

The conditions of defence on the Austrian frontier are exactly the reverse of those on the French border line. On the north-eastern frontier, Austria holds the heads of the principal valleys and, generally speaking, the line of watershed. That this is so forms one of the chief motives for the agitations of Irredentist factions in Italy, and for separatist movements on the part of a few plotters in the Trentino and at Trieste. The population of the Tyrol is Austrian in nationality and in sentiment, only a limited district south of Trente being Italian in language and thought.

The strict defence of the Italian frontier, rendered difficult by the tracing of the border line, becomes

scarcely practicable when the enveloping character of the Austrian frontier and the menacing position of the Tyrol are considered. The defence of the Austrian frontier is assured by barrier forts, assuming considerable defensive worth in the Tyrol; the lines of rail debouching at Görz, Tarvis, Villach and Franzensfeste, permit of a rapid concentration of Austrian forces.

In opposition to the menacing position held by Austria, Italy has taken the only means in her power; she has strongly barred the outlets of the most important roads, she has fortified, nominally, the line of the Adige from Verona to the Adriatic, and by developing her railways she has increased the facilities for concentrating her armies before Austria has time to take advantage of the peculiar excellence of her position.

In a campaign where Austria would have no other enemy but Italy to contend with, the latter country would find the defence of Venetia a matter of difficulty. An army operating in Venetia against an enemy holding the line of Görz—Tarvis would be threatened in flank and rear by the forces holding the Carnic and Cadoric Alps and the Tyrol; no advance would be feasible towards Styria before the Tyrol and the valleys of the Upper Adige and Piave were occupied.

The occupation of Venetia by the enemy without a blow during the first few weeks of the war would be a very unfortunate occurrence. It is not to be expected that the rank-and-file of the Italian army would fathom strategic necessities calling for such a step as the abandonment of a country which so many men in each regiment would claim as their home. The enemy's

confidence would increase in proportion, and every proclamation would abound with references to the apparently craven spirit in which Italy had commenced the war.

The moral results of this step, with no compensating advantages attained by success elsewhere, would be demoralising in the extreme.

No attempt has been made to render any assistance to the defenders of the interior of Venetia, nor to ensure the retirement of the line of observation on the eastern frontiers. The lines of the enemy's advance, again, are clearly marked. Three fortified points at Bellune, Udine, and Conegliano, would materially assist the army on the Adige in protecting its concentration, while so many points of assembly would be afforded to the mobile militia and territorial troops.

The fixed and mobile defences of the Tyrol are of no mean order. The works of fortification of the whole of the Trentino, jutting out as it does into Italy, and threatening the heart of Lombardy, form a solid defence, tried and proved in more than one campaign. Each of the eight valleys leading into the interior of this district is closed by a strongly-built fort, which would no doubt be strengthened by accessory defences on the first warning of hostilities. Trente itself, with the surrounding cordon of Romagnano, Martignano, the Dos di Trente, Sopramonte, and the advanced line of Serravalle, Civezzano and Cadine, forms either an offensive or defensive weapon of great power.

The Tyrol possesses remarkable military institutions for the formation and preservation of that *Gemeinsinn*

which has been at the bottom of so many heroic defensive actions celebrated in history.

The annual contingent drawn for military service forms the Emperor Franz Joseph's regiment of Tyrolese rifles. This regiment consists of 7 battalions of 4 companies each; of 7 reserve companies and a depôt, forming in war time 1 battalion (*Ergänzungs-Bataillon*). The peace footing of the regiment is 150 officers and 3,613 men; the war footing 218 officers and 10,032 men. Recruits pass three years in the ranks and seven in the reserve, in the same way as other Austrian soldiers. During peace time the battalions never change garrisons, and in war they march separately, and not by regiments, like the Alpine troops of Italy. The landwehr is formed by men 20 to 32 years of age, who have not served, and of old soldiers for two years after their army service has expired (*Landesschützen*). This landwehr cannot, nominally, be called upon to serve outside the Tyrol, or Vorarlberg, but it can so be called upon "if the strategic defence of the country requires it."

The landstürm is formed by men from 18 to 45 years of age, who do not form part of either active army or landwehr; it is no mere paper force, but is organised so as to be able to readily take its place in line for the defence of the country. Within certain specified limits the defence of the country is managed by the *Landsvertheidigungs-Oberbehörde*, or Superior Committee of National Defence, which has charge of all the administrative and interior services of the troops in the Tyrol and Vorarlberg.

The Landesschützen form 10 battalions, which can

be doubled in case of war, and also 2 mounted rifle squadrons.

The main difference between the landwehr formations of the Tyrol and of the remaining portion of the Austro-Hungarian monarchy consists in the fact that in the latter case the population and the political divisions of the country are chiefly considered; in the former case the circumstances of the neighbourhood. Thus in the case of the Tyrol and Vorarlberg 5 battalions are allowed for the important valley of the Adige, 3 for the Inn, 1 for the Drava, and 1 for the Vorarlberg.

The permanent cadres kept up by the landwehr battalions at their head-quarters number 40 men in all. The instruction of the landwehr troops includes three weeks' battalion manœuvres every two years, while company exercises, lasting fourteen days, take place in the intermediate years. Musketry includes 2 courses of practice each year at the communal ranges. The 20 landwehr battalions, all ranks included, number 20,570 men, including the cavalry squadrons.

The national rifle clubs are recruited from local sources; the chief aims of the regulations of these institutions are, in the words of the Act, to "prepare the defence of the country, and to instruct the population for this purpose without subjecting it to a military organisation." State help is liberally afforded to the clubs, and the result is to greatly encourage the liking for rifle shooting throughout the district, to bring out and form young marksmen, and to cause the standard of shooting throughout the country to reach an exceptionally high level.

We find, then, that in the Tyrol, which forms the most threatening salient of any neighbouring district, and would certainly have to be first assailed in case of war between Italy and Austria, that here there are fixed and mobile defences, equal to, if not surpassing in strength, the Italian preparations on the French frontier. The defensive capabilities of the Tyrol will hardly be called in question; if proof is needed, we may go no further back than 1866, when Von Kühne, with 16,000 men, resisted Garibaldi, one of the most skilful partisan fighters of the century, and rendered fruitless all the brave attempts of his 40,000 men.

Von Kühne has since published an essay on mountain warfare, superior to anything of the kind that has yet seen the light; he explains the proper defensive system for a country like the Tyrol as consisting of three chief lines, corresponding to those of observation, resistance, and counter attack. The great strength of the Tyrol consists in the possibility of rapidly concentrating and attacking invading columns while engaged in the defiles of the mountains.

While the utility of the Tyrol for defensive warfare is beyond a doubt, its power is more limited and strength less apparent in the attack. It will no doubt paralyse the action of Venetia so long as it is held by sufficient forces, but the divergent lines of advance from its valley into the Lombard plains prevent an advancing army from ensuring proper co-operation between its various columns of attack debouching from the hills. It must be a matter of the greatest difficulty for such columns to afford one another mutual support,

and this has been amply testified by past events; the result of such distraction of forces was well shown in 1796, when Wurmser paid the penalty for dividing his troops and preserving no secure links of communication.

The general line of concentration for an Italian army in view of an Austrian attack, would be that of Brescia—Mantua—Boara.

None of the rivers of Venetia can fulfil the *rôle* of a strategic barrier until the Adige is reached; the remainder are all more or less liable to be turned by the valleys of the Piave and the Brenta. With the Adige fortified as its importance demands, and with the Trentino in Italian hands, a very good account could be given of an army advancing from the north-east, but we have already seen that Italy has not yet taken in hand either Peschiera, Verona, Legnago, Mantua, or Borgoforte; until these points, or the most important of them, are in a condition to render an effectual assistance to the active army, the latter will fight under serious disadvantages.

The Mincio, with Peschiera, Mantua, Borgoforte, and the Seraglio, forms a line of defence of peculiar excellence. Colonel Sironi, the eminent Italian exponent of the principles of strategic geography in relation to modern frontier lines, thus sums up the characteristics of the line in question:

"The Mincio does not precisely form a line of operations against any point of the neighbouring states, for no continued communication exists between the upper part of its course, the Sarca, and the lower, the Mincio

proper. But, by its direction, perpendicular to the southern frontier of the Tyrol; by its situation between the two great *débouchés* of the Chiese and the Adige; by the Lac de Garde and the adjacent mountains separating the lines corresponding to these *débouchés* for a considerable length, and at a great distance; by the excellent tactical positions which it possesses throughout the greater part of its course, and lastly by its strength resulting from the combination of these natural and artificial conditions, it is a defensive line contributing largely to paralyse the offensive qualities of the Tyrol, to cover the Po and the Emilian region which join and support it by means of the great *réduit* of the Seraglio. . . . . The Seraglio enlarges the line of the Mincio, consolidates it, solders it as it were to the Po, forming a position astride the river, equidistant from Plaisenza and Ferrara, salient towards the north, and of great solidity. The creation of another passage on the water-line would give it the character of a great and veritable pivot for the defence of Northern Italy, suitable for covering the peninsula and lending its assistance to operations in all directions."

Thus, the Po and the Mincio, joined by the Seraglio fortified and occupied in force, form a double front; if the passages and important centres on this line are assured by defensive works, and the grip preserved on both banks of the stream, great security and liberty of movement will be afforded to the army of operations.

Below Boara the Adige becomes a broad and deep river, forming a real strategic obstacle; numerous canals intersect the country on both sides of the river, and offer

facilities for flooding and increasing the fixed resistance of the Polesina district.

The line of the Mincio and the Po can be avoided by a wide turning movement from the western Tyrol. To be successful such an undertaking would have to be made with forces beyond what would be easily concentrated in the district, so that all such attempts, proved dangerous in history, are, to-day, less easily realisable than ever. If it is desired to extract the fullest power from the line of the Adige with the frontiers as at present constituted, Verona and the line of the Alpon should be fortified; diplomatic and political preoccupations militate against the probability of such an undertaking for the present.

Verona, in Austrian hands, would not be allowed to remain for long in its present indefensible condition; its possession would give the conquerors a solid double base on the Tyrol and Venetia, and further operations could be prosecuted without fear for the safety of communications.

The maritime revival in Italy renders it probable that Austria would find the left flank of her forces in Venetia assailed and harassed by the enemy's war-ships, and that the Gulf of Trieste would scarcely be left unvisited. The coast-line between the Po and Trieste is low, sandy, and bordered by lagoons and marshes, the mouths of the navigable rivers forming the best points for landing.

The line of the Po, from the defile of Stradella to the sea, a distance of 320 kilomètres, forms a broad, deep, and abundant stream. The surrounding country is marshy, and subject in September and October to

periodical floods. Single, double, and triple dams are frequently found; the whole forming a great strategical barrier. Its great length, however, its winding course, the numerous wooded islands which dot its surface, and the excellence of the communications on both banks, offer many opportunities which an enterprising enemy would not be slow to take advantage of.

Again, an enemy attacking from the north, and occupying the great re-entrant of the river from Cremona to Guastalla, would be in a position to deny the defenders of Plaisenza a retreat by the Via Emilia, on account of the proximity of this highway to the river-line from Plaisenza to Reggio. This is but one of many combinations that the serpentine course of the river offers and suggests. The real strength of the line lies in the resistance of Mantua and the Seraglio, which tie down the attack to east or west of the Mincio; in either case this latter position would be on the flanks of the advance.

In the Emilian region the affluents of the Po, rising in the Apennines, flow through beds more or less deep and broad. Their course is generally north-east, and being at right angles to the Via Emilia, the only thoroughly good and continued line of communication between Lombardy and Central Italy, they rise to the level of military obstacles.

It is almost unnecessary to insist again upon the obstacles to the free movements of troops in the lower basin of the Po. The ground is cut up and intersected by innumerable natural and artificial canals, supported and connected by dykes and dams of varying thick-

ness. The high crops, and the vines, interlaced and entwined, cover the rising slopes of the mountains; the ground becomes impassable with a little rain, and breaks into heavy dust-clouds under a hot sun, and with no considerable traffic.

Villages, hamlets, and solidly-constructed isolated buildings abound, rendering local resistance almost everywhere practicable, but diminishing the opportunities for the establishment of well-marked, clear defensive positions, except in rear of natural obstacles. If, then, we do not find those rugged mountain barriers that must curb the dash and break the heart of an impetuous attack by a French army, if the obstacles and defensive preparations are less comprehensive and developed on the eastern than the western frontier, still the more equal poise of the balance of power between Italy and Austria, the superior strength of the Italian ironclad fleet, and the great natural obstacles of the river system of Venetia, offer some compensating advantages that will go far to restore the equilibrium in case of war.

CHAPTER XII.

PENINSULAR DEFENCE.

Napoleon's Opinion—Coast-line of the Tyrrhenian Sea—Harbours—Monte Argentaro—Civita-Vecchia—Naples—Unprotected State of the Town—The Straits of Messina—The Gulf of Santa Euphemia—Coasts of the Ionian Sea—Taranto—The Adriatic Coasts—Harbours—Brindisi—Ancona—Rimini—Coasts of the Gulf of Trieste and the Istrian Peninsula—Pola and Trieste—The Apennines—Bologna and Florence—Defenceless State of the Tuscan Provinces—The Apennine Streams—Re-afforesting Needed—Interior Communications—The Soil—Ramifications of the Mountains—Sicily—The Coasts—Palermo—Marsala—Licata—Messina—Catania—Agosta—Syracuse—The Interior—Difficulties of Defence—Probable Action of the Territorial Troops in Sicily after the Withdrawal of the Active Forces—Colonel Sironi's Opinion of Malta.

Napoleon in his "Commentaries" remarks that the geographic configuration of Italy, consisting of a length out of all proportion to the breadth, is "un vice capital"—the chief cause of the ills the country has suffered, and also of its division into several monarchies or independent republics in the past. But he adds: "No part of Europe is so advantageously situated as this peninsula to become a great naval power. Its three great military ports for construction and armament are:

Spezia for the Ligurian seas, Taranto for Ionian waters, and Venice for the Adriatic. Italy can raise for naval service, even taking her in an era of decadence, 120,000 sailors.* The Genoese, Pisan, and Venetian seamen have been celebrated throughout many centuries. The flag of Italy will fight with advantage against those of France, Spain, Constantinople, and the four barbaric powers."

Italians understand that the ends of coast defence will not be attained by cramming heavy ordnance into every little port on the long coast-line, but by organising a more national scheme, defending indirectly great sections of the shores by means of strong military harbours secure from hostile attack, and forming bases for the action of the war-ships of the country. These more legitimate aims have been, in great measure, already attained.

The coast-line of the peninsula offers an endless variety of scenery. We have already briefly touched upon the Ligurian Riviera and Venetia. The Ligurian sea, however, by its natural configuration has an interest apart from the local topography of the country. A hostile fleet in undisturbed possession of its waters can threaten the basins of the Po and the Arno by real or menaced operations against the Ligurian and Tuscan coasts.

The coast-line of the Tyrrhenian Sea to Monte Argentaro alternates between scarped cliffs and marshy lowlands. Monte Argentaro itself is an isolated rocky

* The population of Italy when this was written was between 17 and 18 millions.

buttress, jutting out into the Mediterranean not unlike Gibraltar, and connected with the main land by narrow tongues of land. It possesses two harbours, Santo Stefano on the north, and Porto Ercole on the south. Military opinion in France seems to incline to this point as the best and most favourable base for maritime action against the peninsula. General Bixio gave it as his opinion, in the Italian Parliament, that even Civita-Vecchia was of secondary importance to this position.

Southward of Monte Argentaro the coast is low and marshy until we come to Civita-Vecchia, where the spurs of Mont Telfa run down to the sea. The maritime conditions of Civita-Vecchia are indifferent and not well secured; naval operations aimed at the capital are not so easy of accomplishment, even in their first stages, as might be imagined. Besides the troops of the active army left at Rome, it is probable that some 25,000 territorial troops would be concentrated in or near the capital; even the first resistance to be encountered by forces debarked would be therefore by no means to be despised.

Southward again comes the Campagna, while from the Tiber mouths to Cape Circeo the shores are flat, marshy, and insalubrious; an important zone, perhaps, on account of its connection with the defence of the capital, but possessing no seaport to even equal Civita-Vecchia.

South of Cape Circeo the coast is more favourable for a debarkation; rough cliffs occur only here and there, the general character being a level beach with gently-rising ground in rear. The most important points in this section are Gaëte and Naples, with Capua forming

the complement of the group. As matters stand at present, there would be no serious difficulties in the way of a force desiring to seize Naples. This rich and populous centre is altogether unprotected; it is too far from the main lines of operations to expect any immediate assistance from the field armies, it will have to rely upon what local strength it can rapidly concentrate.

An aggressor master of the fertile plain of the Volturno and of Caserta would be in a position of great menace, not only towards this part of Italy, but equally with regard to Rome and the Basilicate, since he would well control the communications of the peninsula by the occupation of the line Caserta—Cajazzo.

Neither Gaëte, Capua, Naples, Castellamare, nor the island of Ischia, which form the chief objective points on or near the coast, are defended in accordance with their importance.

This inaction on the part of Italy places one of the most fertile, populous, and important sections of the peninsula at the mercy of an enemy superior by sea. The absence of fortifications protecting the rich town of Naples with its excellent harbour is due to the topographic conditions of the place, which have hitherto prevented the accomplishment of any practical and satisfactory scheme of defence, unaccompanied by colossal expenditure.

Southward of the Bay of Naples the coast-line possesses only a secondary importance from a military point of view; no particular objects would be gained by debarkations in this quarter, the ground is rough and deeply furrowed by valleys and ravines, while the

absence of abundant supplies and the difficulty of the communications render the district unfit for great operations of war.

Supposing the Straits of Messina fortified in a manner to deny all approach to a hostile fleet with orders to interrupt the communications between Sicily and the Calabrian peninsula, there remains the Gulf of Santa Euphemia, very suitable to assist in the attainment of this object. A debarkation here, at or about the point of General Stewart's debarkation in 1806, would dominate the arteries conducting from Southern Calabria and Sicily to the Basilicate, and completely control the situation in the extreme south. To be effective, such an attack would have to be made almost immediately upon the proclamation of hostilities; if this were done, it would have the effect of immobilising the troops to the south of the point chosen for attack, and among these would be, as we have already seen, one-fourth of the entire strength of the bersaglieri.

In the Ionian seas the Gulf and harbour of Taranto are of chief importance. Taranto itself is a position of unmistakable importance, and destined to play a leading part in future embroilments between the Mediterranean powers. Built in an excellent position, not easy of attack, it includes an outer anchorage, the Mare Grando, and an inner harbour, the Mare Piccolo, the latter formed of a broad and shallow lagoon, capable of sheltering an entire fleet with a limited outlay upon dredging operations and suitable harbour works. A chain of islands surrounds the Mare Grando, improving the anchorage and rendering the planning of defensive works a matter of easy accomplishment. "Taranto,"

wrote Napoleon, "is marvellously situated to dominate Sicily, Greece, the Levant, and the coasts of Egypt and Syria. The largest fleets can gain a shelter in its harbours with immunity from attack." Gallipoli would form the probable base for operations against Taranto; the town possesses a good harbour.

The Gulf of Taranto has an importance akin to that of the Gulf of Genoa, enabling an enemy who controls it to act by several lines of operations against the southern provinces. But the coasts of the Ionian sea have been shorn of much of their ancient glories, and will recover their rights but slowly. In the days of Pyrrhus and Hannibal operations were of easier accomplishment in this section of the coast than at the present day; the country was more fertile and resources more abundant; in the present day the unhealthiness of the climate, the absence of good roads, and the poverty of the district, render extensive operations unlikely or barren in results.

The coasts of the Adriatic, although widely differing in character from those of the Ionian and Mediterranean seas, are even less favoured by nature or improved by art. Difficult of approach, bare, rugged, and desolate, they offer few and indifferent facilities for the landing of large bodies of troops. Navigation is both dangerous and uncertain; heavy northerly winds prevail during certain periods of the year; thick mists and deceptive currents place a fleet of merchant transports in some jeopardy, viewing the absence of good seaports. Brindisi and Ancona are, indeed, the only harbours worthy of the name; the remainder labour under the disadvantage of bad hydrographic conditions, and are unsuitable as bases

for great operations. Brindisi is a point of greater importance as a naval station for the defence than as a base for hostile attack, on account of its distance from the chief objective points in an attack on Southern Italy. Recent commercial and military improvements have raised Brindisi to the level of a trade centre of importance.

Mont Gargano, with the small port of Manfredonia, forms the best base for an army intending to aim at Naples and Southern Italy by a debarkation on the Adriatic coast; this section equally forms a good position for the defensive forces, while in case of war with Austria it would answer the menace of Austrian preparations on the coasts of Dalmatia.

A debarkation south of Ancona, with power of operating towards the valleys of the Tiber or the Arno, would have to be undertaken by very considerable forces; great difficulties would be found in the natural obstacles, while the strong position of Ancona would sooner or later have to be counted with.

Rimini, if of minor worth as a seaport, might form a useful base for a secondary attack against the flank of an Italian army defending the line of the Po. In 1866, the possibility of such a diversion, which had been carried into practice by a small Austrian corps in 1813, induced the Italians to échelon a division along the coast to protect their advance.

Venice, although its land defences are not commensurate with their possibly decisive influence upon the course of operations, is a position of great natural strength, and while remaining in Italian hands does much to compensate for the inferiority, as a barrier, of

the north-eastern frontier. If the Italian fleet preserves its liberty of action, the advance of a hostile army against the line of the Po could only take place by masking Venice with forces as great as Italy could rapidly throw into it, or by preparing for the immediate return of such forces from the advancing columns.

There is, in sum, no apparent virtue in the coast of the Adriatic to entitle it to pre-eminence over that of the Mediterranean as a base for offensive operations against the interior of the peninsula; on the contrary, navigation is more difficult, the coast less accessible, harbours infrequent, the interior less generally fertile and suited for the movements of large bodies of troops, while the chief objective points are at a greater distance and less easy of access.

The coasts of the Gulf of Trieste and the Istrian peninsula are indented and rugged and by no means inviting for hostile attack. Fascona is the most favourable point for such an operation; but even this is sufficiently protected by the neighbourhood of Pola. Pola and Trieste answer to the two great commercial and military outlets of Austria on the Adriatic. The topographical conditions of Pola are good, and as a defensive support for the Istrian peninsula the value of its fortifications is undoubted; equally in the attack its position threatens the whole of the Adriatic coasts of Italy and shelters the Austrian war-ships.

It would be too purely hypothetical to attempt to fathom the multitudinous combinations to which the natural peculiarities of the interior of Italy give rise. History, well read and understood, is the best school for such an undertaking.

Colonel Sironi has indeed conscientiously and laboriously considered the whole question from a very comprehensive stand-point; but it would be beyond the scope of the present work to describe the positions, the means of attack and defence, and the many peculiarities of the topography of the interior. Their value would only be demonstrated according to the infinite variety of possible hostile combinations. The Apennine system, however, demands a brief notice.

To the north, Bologna forms the great *tête-de-défilé* for an army of operations on the Po. It is equally the great *réduit* which the attack will have to reckon with before the passage of the great chain of the hills in rear. Excellently placed for filling with energy the *rôle* so evidently assigned to it, it is a town of military importance second only to Plaisenza.

Florence and the valley of the Arno are altogether unprotected by works of defence. The rich and populous provinces of Pisa, Lucca, and Florence, would fall an easy prey to the foe in case the main strength of the field army was concentrated elsewhere. The Tuscan provinces alone furnish a contingent of 65,000 men to the militia forces, and it would appear advisable to form at least one magazine fortress to prevent surprises in this direction. The objections to such a step are that once such a principle admitted the whole of Italy would be loudly clamouring by the mouths of its deputies for similar establishments. It would be, as an Italian remarked, "Difesa sul Etna, difesa sulle Po, dapertutto difesa," to the no small detriment of the general plans.

The Apennines divide the peninsula into two great

strategic zones, corresponding to the eastern and western slopes of the central range or ranges. As mountains, the Apennines are in the second class; never of great height or inaccessibility, seldom scarped or rugged of aspect, their rounded summits and cultivated slopes offer a notable contrast to the craggy tops and impracticable barriers of the Alpine ranges. Often, however, they combine with the general accessibility a strength for local resistance of remarkable value, as for instance at Orvieto, and other points, where we might least expect to find a craggy buttress set in the midst of some gently undulating country.

The puny streams which trickle scanty waters through beds of mud and slime in many of the great towns of the Apennine districts during so many months in the year, are a strange contrast to those broadly-rolling rivers on whose bosom the stately Roman barges and Pisan galleys once so proudly sailed. The cause of this is traceable to the destructive thinning of the woods and forests in the higher regions which has been so extensively practised in late years, and the natural and only remedy is re-afforesting on a grand scale. But in this case the destruction of a year can only be remedied by the construction of a century. Italian skill in hydraulic engineering entitles them to seek and expect success in a measure of such national importance as this, while the ravages of malaria, consequent on these Vandal practices, every year brings the matter more prominently into public notice.

The communications throughout the Apennine regions are fairly easy and assured; all preparations

for strict, tenacious defence, based on the principles of the *Alpinissimi*, would prove abortive. The passes are of a very low mean altitude; they are of less importance as factors of retarding influence than the general nature of the ground. The clay soil offers greater impediments to the march of troops than the accidents of the ground, since it rapidly becomes slimy and holding under the influence of melting snows and rains, rendering all roads not paved or macadamised nearly impassable for the impedimenta of an army.

The various ramifications and secondary groupings of these mountains, reaching far and wide throughout the peninsula, form a theatre unsurpassed for the full development of that partisan warfare for which the want of organisation of such a large proportion of the territorial militia so eminently qualifies them.

Viewing the maritime conditions of Italy, the security of her islands and the safety of their seaport towns must considerably influence her naval preoccupations.

Sicily is incontestably the most important island depending on the peninsula. The Sicilian coasts are scarped and rugged, and, with the exception of a narrow strip of flat ground between the cliffs and the sea, they are very inaccessible.

On the northern coast Palermo is without a rival. The loss of this rich and populous centre would give the enemy the command of the four chief roads leading to the interior of the island.

Marsala, on the west coast, has a good anchorage, and is more generally accessible than any other point on the coast; it forms a good base, as Garibaldi proved in 1860, for operations against Palermo.

On the southern coast the commercial harbour of Licata is the only one worthy of mention. To the eastward the maritime conditions are more favourable; Messina, Catania, Agosta, and Syracuse are all good harbours, and, when properly defended, capable of taking an active part in maritime operations in conjunction with the fleet.

The interior of Sicily is mountainous and unfavourable for great operations. The island was once the granary of Rome, and, so far as fertility of soil is concerned, it has lost nothing of its ancient lustre. About one-half the entire area is cultivated for cereals, while vines prosper and furnish one quarter of the whole product of the Italian kingdom.

The difficulties of a rapid concentration near the coast, the development of the fronts of attack, and the inadequacy of the maritime or outer preparations for resistance render the defence of the island by no means easy. The close and intersected character of the interior alone compensates for this inferiority. The topographical obstacles to be surmounted by a hostile force desiring to occupy the island are great. The mountains, although in their general nature akin to the Apennines, are of a more rugged aspect; the sides of the hills are more scarped, precipices not infrequent, while deep gorges and ravines show notable traces of volcanic action. Thick woods and almost impassable undergrowth render operations uncertain, while the communications are frequently interrupted by torrents swollen by the rains. The valleys are narrow and insalubrious; the higher table-lands are the only suitable positions for encampments or defensive positions during the hot

weather. The north-eastern point of the island is the decisive point for attack, since the communications across the Straits of Messina would be at once interrupted by a hostile incursion at this point.

Recent indications seem to point to the probability of all available troops of the active army being withdrawn in case of a campaign in Upper Italy, Sicily and the other islands being left to their own resources. It will then become all the more an object to immobilise them by preventing their departure to the main theatre of war. The territorial militia, basing their action on the central positions of Castrogiovanni—Nicosia—Petralia Soprana—Santa Catarina, will form the nucleus round which the partisans and free-shooters of the island will concentrate.

The nature of the island is peculiarly favourable to the tactics of the partisan.

The topographical conditions of Sardinia render it unlikely to form the theatre of any but minor operations of war, except as regards the action of the Italian fleet. The barren, mountainous nature of the island, the wretched, poverty-stricken state of the people, the thick and interminable forests, the absence of important centres of life or trade, or even of good communications, combine to form a very uninviting theatre for the military action of regular troops.

Of Malta, Colonel Sironi writes: "It paralyses the influence of Sicily, of our peninsula, of Sardinia and of Corsica, menacing them all as well as the African coast."

THE END.

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